Installation Restoration Program

Public Information Materials

1/27/99
Restoration Advisory Board Meeting
held at Irvine City Hall
Irvine, CA

Materials/Handouts Include:

- RAB Meeting Agenda/Public Notice –1/27/99 RAB meeting.
- RAB Meeting Minutes – 12/2/98 RAB meeting and Attachment *(Minutes approved at the 12/2/98 meeting; attachment with comments is included).*
- Navy and Marine Corps – Internet Access, Environmental Web Sites.
- DoD - Environmental Base Realignment and Closure Web Site Publications List.
- MCAS El Toro Installation Restoration Program Mailing List Coupon.
- MCAS El Toro – Meeting Schedule, Full RAB and RAB Subcommittee, January-August 1999.
- MCAS El Toro Restoration Advisory Board – Installation Restoration Program Site Tour – VOC Source Area (announcement, sign-up form, directions).
- For More Information on MCAS El Toro Redevelopment, contact Ms. Courtney Wiercoch, Development Program Manager, El Toro Master Development Program (714) 834-3000.
- Local Redevelopment Authority Schedule (dated January 27, 1999) with County of Orange Executive Office and Clerk of the Board Due Dates for 1999 Agenda Items (attachment).
- *Presentation* - Remediation of the Volatile Organic Compound Source Area, Installation Restoration Program, Site 24, MCAS El Toro, Dave DeMars, Remedial Project Manager (RPM), Southwest Division Naval Facilities Engineering Command (SWDIV).
- Fact Sheet – Update on Environmental Restoration Program at MCAS El Toro, January 1999 – Marine Corps to Proceed with Interim Remedial Action at Site 24.
- Map – TCE Vapor Concentrations in the Deep Vadose Zone as of December 1998, Vadose Zone Remediation – IRP Site 24.
- Graph and Location Map – Soil Gas Data (1995) with Selected Influent TCE Concentrations at Well 24SVE1, MCAS El Toro.
- Graph and Location Map – Selected Influent TCE Concentrations at Well 24SVE10, MCAS El Toro.
- Assembly of Central SVE Treatment System at Site 24 VOC Source Area, MCAS El Toro (includes photos, map, and diagram).
- U.S. EPA Quick Reference Fact Sheet – A Guide to Developing Superfund Records of Decision, May 1990.
- Provided by Chuck Bennett, RAB Member – Preliminary Questions Regarding: Draft Phase II Feasibility Study Report, OU 2A – Site 24, March 1997 (Updated 28 January 1999); provided for inclusion with 1/27/98 RAB Meeting Materials and Handouts.

Agency Comments - U.S. Environmental Protection Agency (U.S. EPA)

- U.S. EPA Comments on Draft Proposed Plan for Groundwater Remediation at MCAS El Toro (letter dated January 13, 1999).
- U.S. EPA Comments on Planning Documents for the OU-#3B Phase II Remedial Investigation/Feasibility Study at MCAS El Toro, December 1998 (letter dated January 14, 1999).

- U.S. EPA Review of Draft Technical Memorandum – Evaluation of Metals Concentrations in Groundwater (memo dated January 15, 1999).
- U.S. EPA Approval of Draft Final Engineering Design Report (EDR) Vadose Zone Remediation site 24, MCAS El Toro, December 1998 (letter dated January 20, 1999).
- U.S. EPA Request for Extensions to the Federal Facilities Agreement (FFA) Schedules, Operable Unit (OU)-3, Sites 8, 11, and 12, MCAS El Toro (letter dated December 3, 1998).

Agency Comments – California Environmental Protection Agency (Cal-EPA)

- Cal-EPA Request for Extensions to the Federal Facilities Agreement (FFA) Schedules, Operable Unit (OU)-3 Sites 8, 11, and 12 MCAS El Toro (letter dated December 3, 1998).
- Cal-EPA Department of Toxic Substances Control (DTSC), Closure Report Approval – Solid Waste Management Unit 244 at MCAS El Toro (letter dated December 17, 1998).
- Cal-EPA DTSC, Federal Facilities Agreement (FFA) Schedule, MCAS El Toro (letter dated December 22 1998).
- Cal-EPA Department of Toxic Substances Control (DTSC), Approval of Draft Final Engineering Design Report (EDR), Operating and Maintenance Manual (O&MM), Construction Quality Assurance/Quality Control (QA/QC) Plan, and Contingency Plan (CP) for Vadose Zone Remediation at Operable Unit 2A, Site 24, MCAS El Toro (letter dated January 13, 1999).
- Cal-EPA DTSC, Comments on Draft Proposed Plan for Groundwater Remedation, Operable Unit (OU) 2A Site 24 and OU-1 Site 18, MCAS El Toro (letter dated January 22, 1999).
- Cal-EPA DTSC, Comments on MCAS El Toro's Restoration Advisory Board Meeting Minutes for December 2, 1998 (memo dated January 26, 1999).

MCAS El Toro
Restoration Advisory Board
Meeting

27 January 1999 6:30-9:00 PM
Irvine City Hall
Conference and Training Center
One Civic Center Plaza
Irvine

AGENDA

Question and Answer (Q&A) Ground Rules

- ***Q&A follows individual presentations; time designated for presentations includes Q&A time.***
- ***Open Q&A session (environmental topics) is at the end of the New Business segment.***
- ***After meeting adjournment, Navy and Marine Corps representatives are available to answer additional questions.***

Welcome/Introductions/Agenda Review (6:30-6:35)

Joseph Joyce
Marine Corps/Navy RAB Co-chair

Old Business (6:35-6:50)

Approval of 12/2/98 Minutes *(6:35-6:40)*

Greg Hurley
RAB Community Co-chair

Announcements *(6:40-6:45)*

Joseph Joyce & Greg Hurley

Subcommittee Meeting Report *(6:45-6:50)*

Greg Hurley & Subcommittee Chair

New Business (6:50-8:40)

Regulatory Agency Comment Update *(6:50-7:05)*

Glenn Kistner	Tayseer Mahmoud	Patricia Hannon
U.S. EPA	*Cal-EPA DTSC*	*RWQCB*

Public Briefing - VOC Source Area Soil Cleanup *(7:05-7:25)*

Dave Demars
U.S. Navy/Southwest Division

Regulatory Agency Proposed Landfill Investigation - Sites 3 and 5 *(7:25-7:45)*

Glenn Kistner & Tayseer Mahmoud

Status of DTSC "One Voice" for Cal-EPA *(7:45-8:00)*

Tayseer Mahmoud

5 MINUTE BREAK *(8:00-8:05)*

Presentation of a Signed CERCLA ROD *(8:05-8:20)*

Joseph Joyce & Andy Piszkin

Update on Perchlorate Sampling Results *(8:20-8:40)*

Andy Piszkin

Open Q&A (Environmental Topics) *(8:40-8:50)*

Joseph Joyce

Meeting Summary & Closing (8:50-9:00)

Greg Hurley & Joseph Joyce

Meeting Evaluation

Future Topics and Meetings

PUBLIC NOTICE

MARINE CORPS AIR STATION EL TORO

Restoration Advisory Board Meeting

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The Restoration Advisory Board is composed of concerned citizens and government representatives involved in the environmental cleanup program at MCAS El Toro. Your participation and input is important and appreciated.

Wednesday, January 27, 1999
6:30 - 9:00 p.m.

Irvine City Hall
Conference and Training Center
One Civic Center Plaza, Irvine

This meeting will feature the following activities and presentations:

- ***Public Briefing – Volatile Organic Source (VOC) Area Soil Cleanup***
- ***Update on Perchlorate Sampling Results***
- ***Regulatory Agency Proposed Landfill Investigation (Sites 3 and 5)***

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For more information about this meeting and the Installation Restoration Program at MCAS El Toro, please contact:

Commanding General
AC/S, Environment (1AU)
Attn: Mr. Joseph Joyce, MCAS El Toro
P.O. Box 95001, Santa Ana, CA 92709-5001
(949) 726-3470 or 726-2840

MARINE CORPS AIR STATION EL TORO

RESTORATION ADVISORY BOARD MEETING

December 2, 1998

FINAL MEETING MINUTES with ATTACHMENT (pages 16-18)

The 35th Restoration Advisory Board (RAB) meeting for Marine Corps Air Station (MCAS) El Toro was held Wednesday, December 2, 1998 at the Irvine City Hall. The meeting began at 6:33 p.m. These minutes summarize the discussions and presentations from the meeting.

WELCOME, INTRODUCTIONS, AGENDA REVIEW

Mr. Joseph Joyce, Marine Corps RAB Co-Chair, opened the meeting, welcomed everyone in attendance, and reminded the group to sign in so all those present will receive a copy of the meeting minutes and the next RAB meeting agenda. Following self-introductions made by all in attendance, Mr. Joyce provided an overview of the meeting agenda. Mr. Joyce reminded the RAB of the meeting ground rules: time is allotted at the end of each presentation specifically for questions and answers, and to please hold all questions until the end of the presentation. He also said that at the request of the RAB, a separate Open Question and Answer session for environmental topics has been added to the agenda. He added that after meeting adjournment, Marine Corps and Navy representatives will be available to answer additional questions.

OLD BUSINESS

Review and Approval of September 30, 1998 Meeting Minutes

The RAB approved the minutes without amendment. In addition, RAB members acknowledged that the minutes were thorough and complete and appreciation was expressed to the Navy's contractor (Bob Coleman, Community Relations, CLEAN II Program) for the efforts made in producing the document.

Announcements

- Mr. Joyce announced that Mr. Larry Vitale recently passed away. Mr. Vitale worked for the Regional Water Quality Control Board and formerly served as that agency's project manager for oversight of the MCAS El Toro environmental cleanup program. Mr. Joyce said Mr. Vitale had spent a lot of time with the RAB, was most enjoyable to work with, and was a very special person. Mr. Joyce said he wanted to inform all of those involved with the RAB of his passing. Mr. Hurley said he had spoken with Dr. Chuck Bennett, RAB member, about writing a letter to the family of Mr. Vitale to express the RAB's appreciation for his hard work and professionalism. Mr. Hurley said he would prepare the letter for all RAB members to sign.
- Mr. Joyce informed RAB members and others present about obtaining access to the MCAS El Toro Administrative Record for the Installation Restoration Program housed at

the Station. He said that all anyone needs to do is drive to the Station, have your driver's license (in case you are asked for identification). Then inform the guard that you would like to go the Environment and Safety Department in Building 368 to see the Administrative Record, and you will then be granted access to the Station. RAB and community members that have visited the Administrative Record file said they did not have any problems when they went to the Station.

- Mr. Joyce said that the installation of the soil vapor extraction system (SVE) that was transferred from Norton Air Force Base for use at the Station is just about complete.
- Mr. Joyce announced the schedule for the next full RAB and subcommittee meetings (see Closing Announcements/Future Meeting Dates on page 13.)
- Mr. Hurley said that Mr. Joyce provided some additional information on the Defense State Memorandum of Agreement/Cooperative Agreement (DSMOA/CA) in a letter on the sign-in table. He also asked Marcia Mingay, Public Participation Coordinator, Cal-EPA, Department of Toxic Substances Control, to provide an update on the DSMOA/CA negotiations. She said that the Department of Defense (DoD) is requesting a 38 percent decrease in state funding. Discussions are ongoing and depending upon the final budget, DTSC may need to reevaluate its oversight role.

Subcommittee Report

Mr. Hurley said the subcommittee chair, Dr. Chuck Bennett, was prepared to update the full RAB but is ill and unable to attend tonight's meeting. He said it would be best to hold this topic over until the next full RAB meeting.

NEW BUSINESS

♦ **Regulatory Agency Comment Update –**

- **Glenn Kistner, Project Manager, U.S. EPA**
- **Marcia Mingay, Public Participation Coordinator, for Tayseer Mahmoud, Project Manager, Cal-EPA Dept. of Toxic Substances Control (DTSC);**
- **Patricia Hannon, Project Manager, Regional Water Quality Control Board (RWQCB);**

Glenn Kistner, Project Manager, U.S. EPA

Mr. Kistner said he has been reviewing two documents: (1) Draft Record of Decision for Landfill Sites 2 and 17; and (2) the Draft Proposed Plan for Groundwater at Operable Unit 1 (off-Station) and Operable Unit-2A, Site 24 VOC Source Area (on-Station) which addresses contaminated groundwater that originates on-Station.

Mr. Kistner also said that the Navy, on behalf of the Marine Corps, requested a six-month extension request under the Federal Facilities Agreement (FFA) schedule for submitting the Draft Record of Decision for Operable Unit 2C Landfill Sites 3 and 5. He said U.S. EPA, in a letter provided on the sign-in table, agrees that additional time is necessary to address technical and legal concerns but the Agency initially denied the approving the extension until a sufficient schedule of activities and time table is provided for resolving these issues. Mr. Joyce added that the Navy submitted this reasoning to the regulatory agencies (U.S. EPA,

Cal-EPA DTSC, and RWQCB) and the issue under discussion now is the time length for the extension.

Mr. Kistner expressed U.S. EPA's concerns and recommendations on the proposed soil caps for Sites 3 and 5 and suggested a mechanism to alleviate concerns of U.S. EPA and state regulatory agencies. He said that a letter he provided on the sign-in table also covers this issue. He said that the California Integrated Waste Management Board (IWMB) is concerned that the irrigation of landfills with the type of cover proposed by the Marine Corps could cause generation of methane gas and ultimately lead to threats to public health and safety. He said that after reviewing two Draft Technical Memoranda Modeling Reports, IWMB concluded that if irrigation of soil caps occurs there would not be minimal methane gas generation. Also, IWMB could not support the Marine Corps' proposal unless it was demonstrated by either long-term monitoring or a proposed landfill waste characterization study that increased moisture would have minimal impact on landfill gas generation.

Mr. Kistner said that U.S. EPA believes that an agency proposed waste characterization study has merit. He said U.S. EPA is urging the Marine Corps to consider such a study and also encourages that specifics be discussed, and that the Orange County Local Reuse Agency be included in these discussions. He briefly described the type of study that should be considered and stated that the IWMB also recommends such a study. The study would be based on similar efforts conducted at a landfill at the Naval Training Center in San Diego and at three landfills at Moffett Naval Air Station near San Francisco. The study consists of a visible examination using photographic evidence, performing sampling for methane gas (organic matter), and applying boreholes and trenching to further examine the landfill. Boreholes would help determine the depth and contents of the landfills. Trenching in a grid pattern would provide access to inspect landfill contents. In paraphrasing the letter he provided, he said that a proposed waste characterization study of this type at Sites 3 and 5 could provide visual confirmation that the landfills do indeed contain little organic matter. If so, then regulatory agency concerns would be addressed and the agencies could allow irrigation of the monolithic soil cover for any anticipated future land use.

RAB members asked why chemical analysis of wastes would not be conducted? And, if "hot spots" would be missed during the trenching? Mr. Kistner said the driver is organic wastes and that at each of these landfills, even without an engineered cap, no significant levels of contaminants have been detected. Therefore, with an engineered cap with four feet of soil, conditions are expected to stay the same. Also, chemical analysis of wastes is not a requirement of IWMB and this agency has not recommended such analysis in the past. He said U.S. EPA is not advocating chemical analysis of wastes. He added that trenching in a grid pattern would provide coverage needed to conduct this type of study.

A RAB member said he was informed that the IWMB was not provided documents for review by the Southwest Division Naval Facilities Engineering Command (SWDIV), and he asked Mr. Kistner if he was aware of this issue. Mr. Kistner said that the IWMB serves an oversight role and has a lot to contribute to this process regarding the landfills and that they should be receiving all necessary documentation on this subject. Mr. Joyce clarified that this issue regarding IWMB and document distribution is part of the DSMOA discussion, which includes a number of state agencies that have been involved in environmental remediation. DTSC said that they would

coordinate technical reviews and input with all involved state agencies and serve as the "one voice" for the state. He added that state agency participation and coordination by DTSC was detailed in correspondence from DTSC. Mr. Joyce said the Navy and Marine Corps have no problem with participation of IWMB but clarification is needed on the status of the "one voice." He acknowledged that there is some confusion and the Navy and Marine Corps is working to resolve this. Mr. Hurley said that DSMOA or not, the Navy and Marine Corps should provide documentation to the IWMB. He said he would like to have clarification at the next RAB meeting why the IWMB is not receiving documents for review from the Navy and Marine Corps. He further said that he would like to have an agenda item at the next RAB meeting that clarifies the circulation of documents from the Navy to the regulators.

Marcia Mingay, Public Participation Coordinator, Cal-EPA DTSC

Ms. Mingay said she is representing Tayseer Mahmoud, Project Manager, Cal-EPA DTSC, who could not attend tonight's meeting. She began by providing her understanding of the "one voice" issue. Under the "one voice" procedure, DTSC receives documents from the Navy, then distributes the documents to all relevant agencies for review, coordinates state review, and obtains review comments and provides them to the Navy. She said that "one voice" was eliminated about a year or year-and-a-half ago due to budget cuts. She said that DTSC informed the Navy that they could not do "one voice," however, Mr. Joyce is correct in stating that there was no correspondence to the Navy regarding the state's change regarding "one voice". She said that with the budget cuts the state could not follow the "one voice" procedures so the Navy is supposed to provide documents for review to all agencies. Mr. Joyce asked that Ms. Mingay provide further clarification at the next RAB meeting on the status of correspondence on the state's "one voice" procedure.

Ms. Mingay said DTSC has commented on the Draft Technical Memoranda Modeling Reports pertaining to infiltration for landfills covers at MCAS El Toro. She read a portion of Tayseer's comment letter that was provided on the sign-in table. The letter reads, *"The model estimates that the annual infiltration rate through the monolithic cover (Alternative 3) will range between 5.0 and 13.7 inches for golf course scenarios. DTSC cannot accept this infiltration range as a permissible leakage rate for the landfill. The state's performance standard for the allowable percolation amount at monolithic soil covers is "zero" infiltration, and any leakage into the waste beneath the cover would thus be considered a design failure. However, we will reconsider this determination if the Navy/Marines conduct site and waste characterization at the landfills to demonstrate that, under the currently proposed irrigated postclosure land use, the water does not pose any significant threat to public health and safety or to the environment."* She added that DTSC agrees with and supports IWMB comments on this issue and that both U.S. EPA and Cal-EPA DTSC agree that such a survey needs to be done. Ms. Mingay suggested that the proposed waste characterization study be put on the next RAB meeting agenda. Both co-chairs agreed.

Ms. Mingay said that DTSC also commented on other recent documents and comment letters are on the sign-in table. Reports and documents reviewed include: (1) Draft Engineering Design Report and associated documentation for Site 24 vadose zone soil vapor extraction; (2) Closure Report Approval for the Temporary Accumulation Area 765 Site; (3) Closure Report Approval for the Soil Waste Management Unit 7; and (4) the FFA schedule extension request for Sites 3

and 5. Other documents currently being reviewed by DTSC are the Draft ROD for Landfill Sites 2 and 17 and the Draft Proposed Plan for Groundwater for OU-1 and OU-2A (Site 24).

Patricia Hannon, Project Manager, RWQCB

Ms. Hannon said the RWQCB is currently reviewing the following documents: (1) Draft ROD for Landfill Sites 2 and 17; (2) the FFA schedule extension request for Sites 3 and 5; (3) Site Assessment Closure Reports for Underground Storage Tanks and Oil Separators; and (4) the Draft Technical Memoranda Modeling Reports pertaining to infiltration for landfills covers at MCAS El Toro. She has requested more information on the modeling before she can determine if irrigation is a concern at Landfill Sites 3 and 5.

♦ **RAB TAPP Determination – Joseph Joyce, MCAS El Toro BRAC Environmental Coordinator and RAB Co-Chair**

Mr. Joyce said the RAB needed to determine if the group is interested in pursuing a Technical Assistance for Public Participation (TAPP) program grant sponsored by the Department of Defense (DoD). He reminded RAB members that at the last RAB meeting a presentation was made that explained the details of the TAPP program. That presentation also covered two other programs: Technical Outreach Services for Communities (TOSC) and the Technical Assistant Grant (TAG) program. Both TOSC and TAG programs are sponsored by the U.S. EPA whereas the TAPP program is sponsored by DoD and has been specifically developed for RAB groups. All three programs are similar – the main purpose is to provide funds to enable the community to become more involved in the environmental cleanup process and to understand the technical documents the Marine Corps issues regarding the cleanup program at MCAS El Toro.

Mr. Joyce reviewed the criteria for TAPP grants that was outlined at the September RAB meeting. First, technical expertise does not exist with the regulatory agencies. He said that we all agree that the regulatory agencies do have required technical expertise. Second, technical expertise does not exist within the RAB. We have some Ph.D. level experts with chemical and environmental experience on the RAB, so that expertise is there. Third, the $25,000 available for the TAPP grant is deducted from the existing RAB budget which is $35,000 per year as mandated by Congressional language in the appropriations bill. Fourth, the TAPP grant will help RAB members understand technical documents that are issued.

Mr. Joyce, said he is required to provide the RAB community members an opportunity to vote on whether they would like to pursue a TAPP grant. Specifically, this would involve spending part of the $35,000 RAB budget for technical assistance. Mr. Hurley, speaking on behalf of Dr. Chuck Bennett, RAB member, said that Dr. Bennett would be interested in using a TAPP grant to improve the information repository. Mr. Joyce said that would not be an appropriate use of TAPP grant funds. RAB members briefly discussed the TAPP grant and its potential effect on current RAB support. Mr. Joyce asked community RAB members to voice vote for or against pursuing a TAPP grant. Community RAB members voted unanimously too not pursue a TAPP grant.

♦ **Record of Decision Process – Andy Piszkin, Lead Remedial Project Manager, Southwest Division Naval Facilities Engineering Command**

Mr. Piszkin said that this presentation was originally made in August 1997 but was being repeated at the request of the RAB. He said that when this presentation was first made, the Marine Corps was preparing to issue its first Record of Decision (ROD), under CERCLA, for MCAS El Toro. In September 1997, two RODs were issued, an interim ROD and a final ROD. The interim ROD was for cleanup of VOC-contaminated soil at Site 24. The final ROD was for No Action at 11 Installation Restoration Program sites.

Mr. Piszkin briefly described the entire ROD process that centers on decision documentation for the Installation Restoration Program. The first decision document is the Proposed Remedial Action Plan (Proposed Plan) in which the lead agency (DoN on behalf of the Marine Corps at MCAS El Toro) presents in summary form the proposed or preferred remedial alternative for a specific site(s). The second decision document is the Record of Decision. The ROD is a legal document that summarizes: (a) contamination situation at the site, (b) what is the current risks to human health and the environment, (c) remedial options, and (d) the decision for no action or remedial action made by DoN with the site.

The DoN is the lead agency. The U.S. EPA is the lead regulatory oversight agency. U.S. EPA has the final authority on all CERCLA RODs. Therefore, DoN follows all U.S. EPA rules and requirements. If U.S. EPA does not concur with the ROD issued by the DoN, they will not sign the document. The categories of RODs are described below.

- No action means that after looking at all the information for a site, it is determined that there is no action warranted. MCAS El Toro had 11 sites last year that were included in a no action ROD.
- Petroleum exclusion refers to a law that provides for sites with exclusively petroleum contamination to be taken out of the CERCLA program and put into another over site program. Mr. Piszkin explained that some sites were in the CERCLA program, but after finding samples containing only petroleum, they pulled those sites out of CERCLA and gave those sites to the Water Board as the over site agency.
- Interim action RODs are completed for a portion of a site. The VOC Source Area at Site 24 has two environmental media contaminated with VOCs, soil and groundwater. For cleanup purposes the site was divided so soil and groundwater could be dealt with separately and more efficiently. An interim ROD to perform soil vapor extraction on the soil was signed and concurred upon in September 1997.
- Action RODs means occur when a plan for taking some type of physical action at a site(s) is agreed upon. Currently, the Marine Corps is in the process of developing a proposed plan for Operable Unit 3 Sites 8, 11, and 12. Preparation of the ROD would follow the public comment period.
- Contingency RODs state that if plan A is not implemented due to some factors then plan B will be the alternative selected for implementation.

Mr. Piszkin also described the types of changes to RODs that require documentation. Changes refer to the scope, performance, or cost of the alternative selected by the ROD

process. Specifically, there are three categories of changes: non-significant, significant, and fundamental.

- Non-significant changes have little or no impact to the overall scope of a proposed alternative and involve only minor changes or clarifications.
- Significant changes are changes to the proposed alternative and are documented in the ROD document. For example, a change from the preferred remedy to another remedy that underwent evaluation in the feasibility study. More specifically, if a landfill cap is initially proposed but now a liner to the landfill cap is included in the selected remedy.
- Fundamental changes to the ROD would occur if the remedy does not work. If this is the case, then the technology would be changed entirely to address the cleanup objectives and goals concurred upon in the ROD. This would require a new proposed plan and public comment period.

He also explained the role of the Administrative Record (AR). This is a file comprised of all documentation that is used for making remediation decisions pertaining to operable units or sites. Decisions are based upon documentation contained in the AR file. The AR file is housed at or near the facility. It is prepared and maintained following specific U.S. EPA guidance. It also is the standard for judicial review and is the basis for decisions regarding the specific operable units or sites. He said once the ROD is signed, if there were a legal challenge or a lawsuit, it would be based on the content of the AR.

Mr. Piszkin explained that a ROD serves as a summary of the Installation Restoration Program and the efforts of the Marine Corps and the DoN. The document contains Declaration/Signature pages with signatures from the U.S. EPA, Regional Administrator; Cal-EPA DTSC; the RWQCB; and Joseph Joyce, the BRAC Environmental Coordinator for MCAS El Toro (representing the Marine Corps and the DoN). The document includes history of the site, history of community participation, a summary of site characteristics and the remedial investigation, a summary of the risk assessments, and a summary describing the remedial alternatives evaluated. Also contained in the ROD document is a comparative analysis of the alternatives and the selected remedy. It presents statutory limitations and if there are significant changes, they are documented in a specific section of the ROD.

A responsiveness summary is also included in the ROD. Here public comments and questions are summarized and responded to. He explained that if there are significant comments regarding the proposed plan obtained during the public comment period, this section is where responses to those comments are included. He said that if a comment does not significantly apply, there is no legal requirement to answer such a question. Mr. Piszkin noted that in the RODs for MCAS El Toro, comments are answered point-by-point, but there is no requirement for responding in this manner. He stated that if a group of people ask basically the same question, the DoN would summarize and respond with one inclusive answer. Also included in the ROD is an Administrative Record index of documentation that is specifically associated with the site or sites, covered in the ROD. He said that the lead technical agency (DoN on behalf of the Marine Corps) produces the ROD document and responsiveness summary, which then is reviewed by the signatories of the Federal Facilities Agreement.

Furthermore, DoN is in charge of developing the entire program. Mr. Piszkin clarified that U.S. EPA is the lead oversight agency and will have final say on the ROD because MCAS El Toro is an NPL site. For U.S. EPA to have this authority, the site covered in the ROD has to fall under the U.S. EPA's jurisdiction.

To satisfy a RAB request, Mr. Joyce said that he would bring a copy of a previously signed ROD to the next RAB meeting. This will serve as a sample ROD so RAB members can understand the level of detail presented in these documents. A RAB member asked if there was going to be a ROD signed by the time of the next meeting. Mr. Joyce responded that there would not be a ROD signed by the January 27, 1999 the date of the next scheduled RAB meeting. He also said that RODs are not accessible through the web site. Mr. Joyce reminded the RAB that the two Final RODs signed in September 1997 are currently housed at the Information Repository.

◆ **Underground Storage Tank (UST) Program at MCAS El Toro – Andy Piszkin**

USTs

Mr. Piszkin stated that the UST program at MCAS El Toro is one of the most successful environmental programs underway at the Station. He said that there are nearly 400 tank sites and almost all have been addressed. He added that Lynn Hornecker, SWDIV Remedial Project Manager, is doing a great job managing the program. With USTs there are no political-type issues and fewer oversight agencies are involved so there are fewer variables. The working partnership between Ms. Hornecker and OHM (remedial contractor) is very successful.

He explained that there are two oversight agencies for the UST program. The Orange County Health Care Agency (OCHCA) oversees tank removal and ensures that the proper locations are being sampled when tanks are pulled. The RWQCB – Santa Ana Region oversees site assessments, site remediation, and groundwater remediation. Mr. Piszkin told the RAB that 90 percent of MCAS El Toro's groundwater is more than 100 feet below the surface. He said that approximately 4 out of the nearly 400 tanks are associated with leakage that reaches the groundwater.

Mr. Piszkin said that out of 398 USTs at the Station, 320 have been pulled out of the ground. He stated that 285 have received regulatory closure. Currently, there are 30 UST closures under review by the RWQCB and 23 USTs are under investigation. Only 60 of the 398 underground storage tanks are still in service or await site closeout.

Oil/Water Separators

There are 59 oil/water separators sites, 38 of which are still in service supporting MCAS El Toro operations. Of the remainder, 8 have received regulatory closure, 3 closures are under review by RWQCB, and 10 are currently under investigation.

A jet fuel leakage associated with the Tank 398 site area was also discussed. In the handout, Mr. Piszkin provided three maps to help RAB members understand the location, results of

groundwater analysis, and the estimated thickness of free-product (jet fuel) in groundwater. He noted that Tank 398 actually did not leak, but more than likely the joints in the piping leaked. The leakage resulted in free product floating on the groundwater. Jet fuel is being successfully removed. OHM checked for MTBE and it was detected in very low concentrations, most of which is non-detect. The second map provided an overview of all the information the Marine Corps has been collecting including dates, general analytes, and detection levels in relation to the analytical results of groundwater samples for Tank 398. The third map shows two contours of groundwater contamination: free-product (which is 99 percent pure) floating on the groundwater, and the benzene concentrations which are usually a good indicator of the spread of the plume. He said for the 10 years or so that the leakage occurred it has not spread any further.

In the last part of his presentation, Mr. Piszkin offered an overview of remediation activities and progress at the Tank 398 area. Over 60 tons of mass has been pulled with the soil vapor extraction system. He stated that the skimming of free-product using pumps has significantly slowed down over the last year. Bailers are now used instead of skimming pumps to remove the free product because the skimming pumps became ineffective after so much free product was removed. Once or twice a month, the contractor goes to the site and bails some of the wells to remove free product.

Questions and Answers

In response to questions regarding the tank leakage, Mr. Piszkin said that the free product is not leaking anymore and there is only a finite amount in the groundwater. The benzene contour line is only a couple hundred feet away from the ground zero point source indicating that free product has not spread very far. Mr. Joyce said, in response to a follow up question, regarding how many gallons of fuel leaked from the tank's piping, that there is no way for the Marine Corps to go back and assess how many gallons leaked from a pipe that no one knew was leaking.

Mr. Piszkin noted that the earliest the leak could have occurred would have been when the tank and piping were installed and first used. He said that the leak probably occurred in the late 1980s or early 1990s. Mr. Piszkin again acknowledged that there is benzene in the groundwater. The Marine Corps is monitoring the groundwater and will track it for a few more years to see if it is migrating significantly, thus far there been no significant migration. He said that there might be a point where there is still benzene in the groundwater and at that point, the Marine Corps would coordinate any proposed action with the RWQCB.

♦ EPA Presentation and Discussion on Perchlorate – Kevin Mayer, U.S. EPA

Mr. Mayer said his presentation would cover several topics relating to perchlorate. He discussed history of use, toxicity, chemistry, where it is being found, treatment technologies, analytical details, information gaps, and regulatory status. Mr. Mayer told the RAB that if there were any of the topics that needed further explaining, he would go into more detail if time permitted.

History of Perchlorate

Mr. Mayer said that before last year, U.S. EPA Region 9 knew that perchlorate was disposed of in the environment, specifically at locations in California and Nevada. U.S. EPA had some analytical problems determining whether or not perchlorate was in the groundwater, and assessing the toxicity of perchlorate. In 1985, at the San Gabriel Superfund Site, there was a problem with the analytical method that U.S. EPA was using to monitor and measure perchlorate. U.S. EPA asked for assistance from the Agency for Toxic Substances and Disease Registry (ATSDR), a federal government agency that determines how toxic a substance may be. ATSDR found that the data had quality assurance problems and it was not known if perchlorate could be detected and at what concentration in the groundwater. He added from 1992 to 1995, U.S. EPA pushed the envelope on toxicity of perchlorate and determined a reference dose or a safe level for concentrations in groundwater. In 1997, the State of California sponsored some analytical perchlorate research that made a major breakthrough and an analytical method for detecting perchlorate to 4 parts per billion (ppb) was developed.

Uses of Perchlorate

Mr. Mayer said that perchlorate is a manmade compound. Ninety percent of the perchlorate produced in the United States is used in solid rocket fuel. The space shuttle uses approximately 2 million pounds of solid rocket fuel and 70 percent of that solid rocket fuel is the chemical perchlorate. All rockets with solid rocket fuel are packed with perchlorate. Perchlorate is also used for explosives and fireworks.

Chemistry

Mr. Mayer said that perchlorate is a highly oxidized chlorine (ClO_4) compound. Perchlorate molecules have four oxygen atoms tightly packed around a single chlorine atom so it is very stable chemically. He said that a lot of energy would have to be added to it to start moving the oxygen atoms apart before it starts reacting. In a solid rocket fuel, this is done by a small explosive emission charge. When perchlorate is in water it is highly soluble, mobile in water, and due to its structure it is very stable. Because of these characteristics, in water systems it is difficult to detect and to treat. Perchlorate is also difficult to analyze. Previous to 1997, ion chromatography detection limit was 400 ppb, now the detection limit is down to 4 ppb.

Toxicology

Perchlorate mimics the compound iodide. Mr. Mayer said that iodide is essential for the human thyroid to operate. In the 1950s, perchlorate was being used in human drug tests on people with over active thyroids. Many of those people suffered severe health problems. Side effects, including death occur at dosages of over 100 milligrams (mg) per day.

In 1992, U.S. EPA established a reference dose for perchlorate in drinking water between 4-18 ppb; a level which U.S. EPA toxicologists think will be safe. U.S. EPA has no clear evidence of what the effects and long-term effects of exposure to perchlorate in the drinking water will do to a child or fetus. In communities where there are low levels of perchlorate in

the drinking water, there is nothing significant in the initial neonatal data. If there were significance in this data this would suggest that such communities have a higher risk of health caused by thyroid disruption. Currently, there are new toxicity studies underway. The U.S. EPA expects to have a revised reference dose available in early 1999. The internal review is underway, and the external review will happen within a month or two to determine whether 18 ppb is the right number or not regarding perchlorate in the drinking water.

Perchlorate in the Environment

Mr. Mayer said that at this time U.S. EPA does not know what environmental risks are posed by perchlorate on ecology or agriculture. He said that perchlorate may also be associated with the use of fertilizer. Perchlorate has been found in 13 states: Arizona, Arkansas, California, Iowa, Indiana, Maryland, Nevada, New Mexico, New York, Pennsylvania, Texas, Utah, and West Virginia. All the sites in California, Arizona, Nevada, and Utah are all associated with rocket manufacturing and testing. He said, at this time, there is no explanation for the presence of perchlorate at MCAS El Toro. Throughout California, over 500 wells were tested and there are 144 public drinking water supply wells that had perchlorate detected in them at levels of 4 ppb. In 38 of those wells, at least one sample had detects above 18 ppb.

He said that both the Colorado River and Lake Mead are contaminated with perchlorate and Henderson, Nevada is the source of this contamination. The Colorado River is the drinking supply for approximately 15 million people. Mr. Mayer said that levels of perchlorate are up to 15 ppb and sometimes over 20 ppb depending on the temperature of the water, flow, and turnover of water. In the Las Vegas wash, going into Lake Mead, numbers go up to approximately 1000 ppb. Perchlorate has been manufactured at the Henderson, Nevada source since World War II, and groundwater going into the wash has high levels of perchlorate.

Treatment Technologies

Standard treatment technologies such as air stripping and chemical reduction are ineffective for treating perchlorate. Biological treatment, which consists of adding organic matter so bacteria will grow and use up all the oxygen, works. In turn, it will consume all the perchlorate. Ion exchange and reverse osmosis work, but both are expensive remedies. He said that millions of dollars are being spent on research for treatment technologies to produce a method that is standard for removing perchlorate contamination. U.S. EPA is also trying to gain further understanding on toxicity and ecological risks.

Regulatory Authority

California has established 18 ppb as the "action level" for drinking water. U.S. EPA does not yet have a federal regulation in the Safe Drinking Water Act or Clean Water Act for perchlorate. Perchlorate is not listed as a designated hazardous material, but it is under consideration for federal drinking water regulations. Other states are preparing to follow California's lead once the new toxicity numbers come in. U.S. EPA may issue a "Health Advisory" if the information regarding perchlorate warrants it.

Web sites

Mr. Mayer said that U.S. EPA and an interagency perchlorate steering committee have established a web site that covers all the topics covered at the RAB meeting, in more detail. The web site address is: www.epa.gov/ogwdw/ccl/perchlor/perchlo.html. California Department of Health Services has a web site that summarizes the toxicity of perchlorate very well. Their web address is www.dhs.cahwnet.gov (then search for 'perchlorate') or continue. . . /ps/ddwem/chemicals/perchl/perchlindex.htm.

Questions and Answers

A RAB member asked if there are any theories as to why perchlorate is being found at MCAS El Toro? Mr. Mayer replied munitions/ordnance and explosives disposal might account for the perchlorate being found. He said that it is unlikely that rocket engines were cleaned out at MCAS El Toro because only a few contractors are allowed to conduct that activity. A RAB member commented that a possible source for perchlorate contamination at MCAS El Toro could be from rocket-assisted take-offs, or from the ordnance testing range.

Mr. Piszkin said that all the perchlorate groundwater testing has been done, but test results that have not been validated. A RAB member asked what the raw results indicate? Mr. Piszkin said that the results indicated that there are high levels in one well at the EOD range, but no where else. He said that most of the numbers were non-detect. Regarding the EOD range and the testing for high levels of perchlorate, a RAB member asked how high is high? Mr. Piszkin stated that from the well closest to where the Marine Corps did detonation of small arms, the number (which has not been validated) is 280 ppb and the two downgradient wells from that point are non-detect. He said that the downgradient groundwater wells are 100-200 feet deep.

Another RAB member asked, if the Orange County Water District (OCWD) have any wells that are contaminated with perchlorate? Roy Herndon, RAB member from the OCWD, stated that at this time, there are no wells contaminated with perchlorate. OCWD is beginning to test for perchlorate contamination.

◆ **Open Question and Answer (Environmental Topics) – Joseph Joyce**

Q: Is natural attenuation a viable alternative for treating perchlorate?

A: (provided by Mr. Mayer, U.S. EPA) No, it is not viable.

Q: Why are there different areas at MCAS El Toro where perchlorate has been detected?

A: (provided by Mr. Piszkin, SWDIV) Perchlorate might be in different locations. Also, the sampling data recently obtained has not yet been validated. Some detections could be from perchlorate that came from the runways or from fertilizer, we just do not know. I do know that there has been one significant detection in only one of the 77 samples collected and

analyzed. That detection is 280 ppb, unvalidated, at one location at the heart of the Explosives Ordnance Range (Site 1).

Q: Is it possible to have perchlorate in groundwater from "applied" Colorado River water? If there are very low concentrations of perchlorate, as low as a few ppb detected in groundwater, is it conceivable or an indication that this is from Colorado River water?

A: (provided by Mr. Mayer, U.S. EPA) It is only speculative and nothing has been substantiated. When aquifers are recharged in Las Vegas with massive amounts of water from Lake Mead, the same concentrations of perchlorate are detected in water from these wells as that in the water used to recharge the wells.

Q: What is being done with the drinking water in Las Vegas?

A: (provided by Mr. Mayer, U.S. EPA) There are almost 1.5 million people drinking this water, it contains less than 18 ppb of perchlorate, so it is okay. The levels of perchlorate in drinking water fluctuate from just below 5 to 16 ppb. It does go above this at the intakes at Lake Mead. By the time water goes down the Colorado River, no water sample has contained more than 9 ppb of perchlorate, most concentrations are 5, 6 or 7 ppb. He added that 11 billion gallons of water flows out of Lake Mead each day.

MEETING EVALUATION AND FUTURE TOPICS

During the meeting evaluation RAB members provided the following comments:

- Perchlorate presentation was excellent and very informative;
- Good to see lots of new faces participating as community members.

Suggestions for future presentation topics include:

- Perchlorate – Status after U.S. EPA internal review of action levels, K. Mayer, U.S. EPA point-of-contact for perchlorate, provide update at future RAB meeting;
- Update on regulatory agencies proposed waste characterization study for Landfill Sites 3 and 5;
- Update on OU-1 and OU-2A (Site 24) Groundwater and Irvine Desalter Project;
- Update on OU-3 Sites 8, 11, and 12;
- Clarification on the circulation of documents from the Navy to the regulatory agencies;
- Status on correspondence of DTSC serving as state's "one voice"; and
- Provide a Draft Final Record of Decision and conduct brief walk through.

CLOSING ANNOUNCEMENTS/FUTURE MEETING DATES

- The next RAB meeting is scheduled for 6:30 to 9:00 p.m., Wednesday, January 27, 1999 at the Irvine City Hall, Conference and Training Center, One Civic Center Plaza, Irvine.
- The next RAB subcommittee meeting is scheduled for 6:30 to 9:00 p.m., Wednesday, February 24, 1998 at the Irvine City Hall, Conference and Training Center, One Civic Center Plaza.

The 35th meeting of the MCAS El Toro Restoration Advisory Board was adjourned at 8:58 p.m.

Attachments:

-- Sign-in sheets.

Handouts provided at the meeting and available at the Information Repository:

-- RAB Meeting Agenda/Public Notice –12/2/98 RAB meeting.
-- RAB Meeting Minutes – 9/30/98 RAB meeting *(Minutes approved at the 12/2/98 meeting).*
-- Navy and Marine Corps – Internet Access, Environmental Web Sites.
-- DoD - Environmental Base Realignment and Closure Web Site Publications List.
-- MCAS El Toro Installation Restoration Program Mailing List Coupon.
-- Letter dated Dec. 1, 1998 from Joseph Joyce, BEC MCAS El Toro/RAB Co-Chair to Greg Hurley, RAB Community Co-Chair, with four enclosures.
-- Assembly of Central SVE Treatment System at Site 24 VOC Source Area, MCAS El Toro; includes photos, map, and diagram.
-- Underground Storage Tank Program Map, MCAS El Toro; includes table with Regulatory Closures of Underground Storage Tank Sites with Calendar Year Totals for 1995, 1996, 1997, 1998, and total closures (285) as of October 1998.
-- Oil Water Separator Map, MCAS El Toro, dated 12/24/97.
-- *Presentation* – MCAS El Toro Records of Decision, 12/2/98 RAB Meeting; Andy Piszkin, Lead Remedial Project Manager (RPM), Southwest Division Naval Facilities Engineering Command (SWDIV).
-- *Presentation* – MCAS El Toro Underground Storage Tank Program Summary, Restoration Advisory Board, 12/2/98 Meeting; Andy Piszkin, Lead RPM, SWDIV.
-- *Presentation* – EPA Presentation/Discussion on Perchlorate; Kevin Mayer, U.S. EPA Region IX.

Agency Comments - U.S. Environmental Protection Agency (U.S. EPA)

-- U.S. EPA Comments on MCAS El Toro Federal Facilities Agreement (FFA) Extension Request, (letter dated November 10, 1998).
-- U.S. EPA Concerns and Recommendation on Proposed Remedy for Sites 3 & 5 Landfills MCAS El Toro (letter dated December 1, 1998).

Agency Comments – California Environmental Protection Agency (Cal-EPA)

-- Cal-EPA Department of Toxic Substances Control (DTSC), Comments on Draft Engineering Design Report (EDR), Operating and Maintenance Manual (O&MM), Construction Quality Assurance/Quality Control (QA/QC) Plan, and Contingency Plan (CP) for Vadose Zone Remediation at Operable Unit 2A, Site 24, MCAS El Toro (letter dated October 13, 1998).
-- Cal-EPA, California Integrated Waste Management Board, RE: Draft Record of Decision (ROD) for Sites 2 and 17, MCAS El Toro (letter dated November 3, 1998).
-- Cal-EPA DTSC, Request for Extensions to the Federal Facilities Agreement (FFA) Schedules, MCAS El Toro (letter dated November 6, 1998).
-- Cal-EPA DTSC, Closure Report Approval: Temporary Accumulation Area (TAA) 765 Site at MCAS El Toro (letter dated November 17, 1998).
-- Cal-EPA DTSC, Comments on Draft Technical Memorandum, UNSAT-H Infiltration Modeling for Landfill Covers, MCAS El Toro (letter dated November 23, 1998); Attachment: Additional Comments from California Integrated Waste Management Board (letter dated November 17, 1998 and memo dated November 4, 1998).
-- Cal-EPA DTSC, Closure Report Approval: Solid Waste Management Unit 7 at MCAS El Toro (letter dated November 24, 1998).

Copies of all past RAB meeting minutes and handouts are available at the MCAS El Toro Information Repository, located at the Heritage Park Regional Library in Irvine. The address is 14361 Yale Avenue, Irvine; the phone number is (949) 551-7151. Library hours are Monday through Thursday, 10 am to 9 p.m.; Friday and Saturday, 10 am to 5 p.m.; Sunday 12 p.m. to 5 p.m..

Navy and Marine Corps Internet Access - Environmental Web Sites (includes RAB meeting minutes)
http://www.efdswest.navfac.navy.mil/pages/Envrnmtl.htm

Marine Corps Air Bases Western Area Web Site (includes MCAS El Toro):
www.eltoro.USMC.mil

Department of Defense - Environmental BRAC Web Page
www.dtic.mil/environdod/envbrac.html

U.S. EPA Superfund Web Page
www.epa.gov/superfund/index.html

NOTE: Attachment – RAB Meeting Minutes Comments

This item is on the following pages. It contains comments on the 12/2/98 RAB Meeting Minutes. The complete and final meeting minutes include this attachment.

Attachment – RAB Meeting Minutes Comments

This attachment comprises pages 16–18 of the MCAS El Toro 12/2/98 RAB Meeting Minutes. These pages contain comments on the 12/2/98 RAB Meeting Minutes. In the review of the meeting minutes at the 1/27/99 RAB meeting, RAB members concurred on attaching these comments to the 12/2/98 RAB Meeting Minutes. The approved and final meeting minutes include this attachment.

MEMORANDUM

TO: Mr. Tayseer Mahmoud
Remedial Project Manager

FROM: Ms. Marsha Mingay
Public Participation Specialist

DATE: January 26, 1999

SUBJECT: MCAS EL TORO'S RESTORATION ADVISORY BOARD MEETING MINUTES FOR DECEMBER 2, 1998

Upon review of the above referenced meeting minutes (received January 21, 1999), the following comments are provided. Note that the submittal of some these comments (example numbers 6 and 7) are felt necessary due to the comprehensive tone of the minutes. Please forward these comments to the base representatives so that the changes are assessed and incorporated into the final copy of the minutes. Additionally, the base representative needs to be appraised of these changes prior to the January 27, 1999 Restoration Advisory Meeting so that the minutes will not be approved as they are currently written.

If either yourself or the base representatives have any questions regarding these comments, please contact me directly at (714) 484-5416.

Page 2, fourth bullet on the page — Please change the wording as indicated to reflect the statements made "... DTSC may need to ~~re~~evaluate ~~its oversight role~~ **workload commitments across Southern California**.

2. Please correct the spelling of Marsha Mingay's name throughout the document. The correct spelling is "Marsha" versus "Marcia".

3. Summary of Glenn Kistner's Regulatory Agency Update — The meeting minutes seem to be missing Mr. Kistner discussion about Department of Defense's (DoD) request for a schedule extension. The minutes should state, "**In response to DoD's request, the agencies have asked DoD to submit a detailed schedule of activities which would lead to the submittal of the Record of Decision.**"

4. Following Mr. Kistner's regulatory update summary on the Draft Technical Memoranda Modeling Reports, the RAB members entered into a lengthy debate on the merits of sampling for hazardous waste components. Since it was a topic of debate and concern, the meeting minutes should reflect this occurrence.

5. Page 4, Ms. Mingay's comments on the Draft Technical Memoranda Modeling Reports are incorrect. Ms. Mingay did not read from Mr. Mahmoud's letter but rather read Mr. Mahmoud's prepared statement. Please substitute the following for the information in italics and the strikeout text. ~~"She read a portion of Tayseer's comment letter that was provided on the sign-in table. The letter reads, *"The model estimates that ... or to the environment."*~~ In regard to the Draft Technical Memoranda Modeling Reports, Ms. Mingay stated that there appears to be some differences between U.S. EPA and DTSC. Specifically, what Mr. Mahmoud left me to read is different from Mr. Kistner's comments. Mr. Mahmoud's comment states that sampling should be done to ascertain if *hazardous waste* is present in the landfills and Mr. Kistner's comments did not address hazardous waste. She then read Mr. Mahmoud's prepared statement, 'DTSC can't accept infiltration or leakage from a landfill containing hazardous waste. The model shows 5-13.7 inches per year infiltration for the golf course therefore need to characterize the landfill to verify if hazardous waste exists.' ~~She added that DTSC agrees with and supports IWMB comments on this issue and that both U.S. EPA and Cal-EPA DTSC agree that such a survey needs to be done.~~ Following Ms. Mingay's comment, the RAB members again requested that the landfills be sampled for hazardous waste to determine safety issues for future reuse. Ms. Mingay suggested that this topic be held over and discussed at the next RAB meeting when both agencies had their technical representatives where in attendance. The RAB and the RAB co-chairs agreed to this suggestion."

1. Page 4, last paragraph on the page — To correct and complete the meeting minutes, please change the text as follows, "(3) RCRA Closure Report Approval for the ~~Soil~~ **Solid** Waste Management Unit 7; and (4) ~~the FFA schedule extension request for Site 3 and 5~~
that DTSC had similar comments to EPA's comments regarding DoD's request for a schedule extension.

2. Page 5, RAB TAPP Determination, second paragraph — The text omits wording needed to clarify the information. Please reword as indicated. **"Mr. Joyce reviewed the criteria under which TAPP grants monies may be authorized** ~~Mr. Joyce reviewed the criteria for TAPP grants that was outlined at the September RAB meeting~~. First, **if** technical expertise does not exist with the regulatory agencies. He said ... Second, **if** technical ...."

3. Page 9, Questions and Answers — Additional questions posed by the RAB and not included in the meeting minutes are, "Why does the thickness of product change? You need another well, like this one 200' west (MWD 398 #12), placed where the plume is

4. migrating. What is the degree of migration? What is the status of reports and frequency of reports?" To follow the comprehensive tone of the minutes, please include these and their responses in the minutes.

5. Page 12, Questions and Answers — One additional question posed by the RAB and not included in the meeting minutes is, "Are you looking at central nervous system effects?" To follow the comprehensive tone of the minutes, please include this and its response in the minutes.

Navy and Marine Corps - Internet Access Environmental Web Sites

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Southwest Division Naval Facilities Engineering Command Web Site:

http://www.efdswest.navfac.navy.mil/DEP/ENV/default.htm

Marine Corps Air Bases Western Area Web Site:

www.eltoro.usmc.mil

Department of Defense - Environmental BRAC Web Page

www.dtic.mil/environdod/envbrac.html

U.S. EPA Superfund Web Page

www.epa.gov/superfund/index.html

Publications

HOME

The following publications have been produced by the Office of the Assistant Deputy Under Secretary of Defense (Environmental Cleanup).

Some of these documents are in Adobe PDF format. In order to read these files you must Download Adobe Acrobat Reader, if it is not already installed on your computer. Once you have installed Adobe Acrobat Reader, click on the PDF document you wish to view. Then, select the ".exe" (executable) file in the Adobe Acrobat directory when your browser prompts you to select an application for viewing the document. (See page 2, backside.)

Guidance Documents

- BRAC Cleanup Plan Abstract and BCP Abstract Instructions
- BRAC Cleanup Plan (BCP) Guidebook (Fall 95)
- Retention of Environmental Professionals at Closing Installations

Policy Documents

- Environmental Review Process to Obtain the Finding of Suitability Required for Use of Early Transfer Authority for Property Not on the National Priorities List (April 1998) New!
- DoD Finding of Suitability to Transfer for BRAC Property (FOST) Policy Memorandum (June 1994)
- Asbestos, Lead-based Paint (LBP) and Radon Policy Memorandum (October 1994)
- FAST Track Cleanup at Closing Installations (May 1996)
- Implementation of Authority to Transfer Property Before Completing Remediation (September 1996)
- DoD Future Land Use Policy (July 1997)
- Clarification of "Uncontaminated" Environmental Condition of Property at Base Realignment and Closure (BRAC) Installations (October 1996)

Factsheets, Guides, & Tools

- Fact Sheet - Early Transfer Authority (May 1998) New! **Adobe PDF Format**
- Fact Sheet - CERCLA/RCRA Overlap in Environmental Cleanup (May 1998) New! **Adobe PDF Format**
- A Guide to Establishing Institutional Controls at Closing Military Installation , (February 1998) New!
- A Guide to Assessing Reuse and Remedy Alternatives at Closing Military Installations (February 1996)
- BRAC 1995 Quick Reference: Community and Environment (1995)
- BRAC Fast -Track Cleanup Environmental Guide
- Expediting BRAC Cleanups Using CERCLA Removal Authority Fact Sheet (Spring 1997)
- Fact Sheet - Field Guide to FOSL
- Fast Track to FOST A Guide to Determining if Property is Environmentally Suitable for

Transfer (Fall 1996)
- Innovative Solutions Save Time and Money Fact Sheet (Spring 1997)
- Institutional Controls - What They Are and How They Are Used Fact Sheet (Spring 1997)
- Keys to Opening the Door to BRAC Cleanup Team (BCT) Success
- Overview of the Fast-Track Cleanup Program Fact Sheet (Spring 1997)
- Map of Fast-Track Cleanup Installations Under BRAC
- United Efforts Strengthen Cleanups - Partnering Makes a Difference (Spring 1997)
- Updating your RAB to Meet BRAC Needs (June 1996)
- Using CERCLA ARAR Waivers in BRAC Cleanups (Fall 1997)

Reports

- Fast-Track Cleanup; Successes and Challenges, 1993-1995

Presentations

- No presentations are currently available.

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How to download Adobe Acrobat Reader:

Go to **www.adobe.com/proindex/acrobat/readstp.htlm** to access the Acrobat Reader software. Follow the directions provided to download this software on your computer.

You can also reach this web page from the Adobe home page **www.adobe.com** and then click on the icon "Get Adobe Reader".

MCAS El Toro

Installation Restoration Program

MAILING LIST COUPON

If you would like to be on the mailing list to receive information about environmental restoration activities at MCAS El Toro, please complete the coupon below and mail to: Commanding General, AC/S, Environment, (1AU), Attn: Mr. Joseph Joyce, IRP Department, MCAS El Toro, P.O. Box 95001, Santa Ana, CA 92709-5001.

❒ Add me to the MCAS El Toro Installation Restoration Program mailing list.

❒ Send me information on Restoration Advisory Board membership.

Name _____

Street _____

City _____ State _____ Zip Code _____

Affiliation (optional) _____ Telephone _____

MCAS El Toro -- Meeting Schedule
Full RAB and RAB Subcommittee
January – August 1999

The Conference and Training Center (CTC) at Irvine City Hall has been reserved/confirmed for RAB meetings (full RAB) on the last Wednesday of the month (CTC reserved). Dates listed in *italic* are for RAB Subcommittee meetings.

RAB Meetings

- **January 27, 1999 (CTC reserved)**
- **March 31, 1999 (CTC reserved)**
- **May 26, 1999 (CTC reserved)**
- **July 28, 1999 (CTC reserved)**

Subcommittee Meetings

- *February 24, 1999 (CTC Reserved)*
- *April 28, 1999 (CTC Reserved)*
- *June 30, 1999 (CTC Reserved)*
- *August 25, 1999 (CTC Reserved)*

Marine Corps Air Station El Toro

Restoration Advisory Board

Installation Restoration Program Site Tour – VOC Source Area

♦ ♦ ♦ ♦ ♦

Restoration Advisory Board (RAB) members are invited to participate in a tour of the Installation Restoration Program Site 24 at MCAS El Toro. This tour will provide RAB members with a firsthand opportunity to see the site and to ask questions of Marine Corps and regulatory project staff.

Date: Saturday, February 27, 1999 at 9:00 a.m.

Sign-up: Please sign-up by filling out the attached form and mailing or faxing it to Mr. Joseph Joyce by February 17, 1999

Mailing address:
Commanding General
Attn: Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro, P.O. Box 95001
Santa Ana, CA 92709-5001

Overnight mail:
Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro, Bldg. 386, 2nd Floor
Santa Ana, CA 92709-5001

FAX number: (949) 726-6586

Time: The tour will begin promptly at 9:00 a.m. and last approximately 1 hour. Please arrive 15 minutes early.

Location: Meet at MCAS El Toro, Officers' Club. Directions to the Officers' Club are attached to this flyer.

Please wear comfortable walking shoes

MCAS El Toro
Restoration Advisory Board

Installation Restoration Program Site Tour
VOC Source Area

Sign-up Form

Date: Saturday, February 27, 1999 at 9:00 a.m.

Sign-up: Please sign-up by filling out this form and mailing or faxing it to Mr. Joseph Joyce by February 17, 1999.

Name: _____

Affiliation: _____

Phone Number: _____

FAX Number: _____

Address: _____

_____

If there is more than one person in your party please include their names and relevant information

Mailing address:
Commanding General
Attn: Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro, P.O. Box 95001
Santa Ana, CA 92709-5001

Overnight mail:
Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro, Bldg. 386, 2nd Floor
Santa Ana, CA 92709-5001

FAX number: (949) 726-6586

Time: The tour will begin promptly at 9:00 a.m. and last approximately 1 hour. Please arrive 15 minutes early.

Location: Meet at MCAS El Toro, Officers' Club. (See attached flyer for directions).

Marine Corps Air Station El Toro

Restoration Advisory Board

Installation Restoration Program Site Tour

Directions to Officers' Club (tour starting point):

- From either I-5 or I-405 exit at Sand Canyon Avenue.
- Take Sand Canyon north to Trabuco Road, make a right turn. You will head straight to the Main Gate. At the Main Gate, inform the guard you are attending the Restoration Advisory Board (RAB) tour (VOC Source Area).
- From the Main Gate proceed straight to Perimeter Road, make a right turn (stop sign).
- Follow Perimeter Road for 1/2 to 3/4 of a mile, look for "Officers' Club signs.
- The Officers' Club is a large, tan colored building that stands alone on the right side of the road.
- Pull into the parking lot on the right side of the building. The parking lot at the Officers' Club is the starting point for the tour.

For Information on
MCAS El Toro Redevelopment

Ms. Courtney Wiercoch

Development Program Manager

El Toro Master Development Program

(714) 834-3000

January 27, 1999

The Local Redevelopment Authority (LRA) will continue to meet quarterly on the last Tuesday of the month, prior to the regularly scheduled Board of Supervisors meeting. The following dates and times will serve as the 1999 LRA Meeting Schedule.

March 30, 1999	@ 4:00 pm
June 29, 1999	@ 4:00 pm
September 28, 1999	@ 4:00 pm
*December 21, 1999	@ 8:00 am (last Board meeting of 1999)

These dates are subject to change. If you require additional information, please contact (714) 834-3000.

**December 21, 1999 is the last Board meeting of 1999; however, it is not the last Tuesday of the month. Therefore the LRA will meet prior to the regularly schedule Board of Supervisors meeting which is scheduled for 9:30 am.*

PUBLIC LRA MTNG SHCD
CW.nr: 1/27/99

County Executive Office & Clerk of the Board
Due Dates for 1999 Agenda Items

Board Hearing Date	Agenda Items Due Date to CEO Rosemary Dey (By noon)	Supplemental Due Date to CEO Rosemary Dey (By noon)	Date to Clerk of the Board (By noon)
January 5	December 22	December 29	December 23
January 12	December 29	January 5	December 30
*January 26	January 12	January 19	January 13
Febuary 2	January 19	January 26	January 20
Febuary 9	January 26	Febuary 2	January 27
*Febuary 23	Febuary 9	Febuary 16	Febuary 10
March 2	Febuary 16	Febuary 23	Febuary 17
March 9	Febuary 23	March 2	Febuary 24
March 16	March 2	March 9	March 3
March 23	March 9	March 16	March 10
*March 30	March 16	March 23	March 17
April 6	March 23	March 30	March 24
April 13	March 30	April 6	March 31
April 20	April 6	April 13	April 7
*April 27	April 13	April 20	April 14
May 4	April 20	April 27	April 21

**** Night Meetings Start at 6.00 p.m.***
If you have any questions please give Rosemary Dey a call at 834-5777

For additional dates click below
Next >

County Executive Office & Clerk of the Board
Due Dates for 1999 Agenda Items

Board Hearing Date	Agenda Items Due Date to CEO Rosemary Dey (By noon)	Supplemental Due Date to CEO Rosemary Dey (By noon)	Date to Clerk of the Board (By noon)
May 11	April 27	May 4	April 28
May 18	May 4	May 11	May 5
*May 25	May 11	May 18	May 12
June 8	May 25	June 1	May 26
June 15	June 1	June 8	June 2
June 22	June 8	June15	June 9
*June 29	June 15	June 22	June 16
July 20	July 6	July 13	July 7
*July 27	July 13	July 20	July 14
August 3	July 20	July 27	July 21
August 10	July 27	August 3	July 28
August 17	August 3	August 10	August 4
August 24	August 10	August 17	August 11
*August 31	August 17	August 24	August 18
September 14	August 31	September 7	September 1
September 21	September 7	September 14	September 8

**** Night Meetings Start at 6.00 p.m.***
If you have any questions please give Rosemary Dey a call at 834-5777

For additional dates click below
Next >

County Executive Office & Clerk of the Board
Due Dates for 1999 Agenda Items

Board Hearing Date	Agenda Items Due Date to CEO Rosemary Dey (By noon)	Supplemental Due Date to CEO Rosemary Dey (By noon)	Date to Clerk of the Board (By noon)
*September 28	September 14	September 21	September 15
October 5	September 21	September 28	September 22
October 19	October 5	October 12	October 6
*October 26	October 12	October 19	October 13
November 2	October 19	October 26	October 20
November 9	October 26	November 2	October 27
November 23	November 9	November 16	November 10
**December 7	November 22	November 30	November 23
December 14	Novemebr 30	December 7	December 1
December 21	December 7	December 14	December 8
January 4	December 21	December 28	December 22

**** Night Meetings Start at 6.00 p.m.***
*****Submission dates changed due to a holiday***
If you have any questions please give Rosemary Dey a call at 834-5777

Remediation Of The Volatile Organic Compound Source Area

Installation Restoration Program
Site 24
Marine Corps Air Station, El Toro

Background

- IRP Site 24 - 200 acres located in southwest quadrant of station
- Approximately 40 years of aircraft and vehicle maintenance utilizing industrial solvents
- Releases of solvents to the vadose zone resulted in contamination of the aquifer

Remedial Investigation

- 1994 Phase I RI Soil Gas Survey - identified VOCs in soil and groundwater under Hangars 296 and 297
- 1995 Phase II RI - defined extent and concentration of TCE plume in soil
- Construction of 21 SVE wells

SVE Pilot Tests

- Utilize 21 SVE wells constructed during Phase II RI
- Wells were installed in areas of highest VOC concentration
- SVE Pilot tests ran for 2-12 weeks intervals
- Removal of over 800 lbs. of TCE from vadose zone

Remedial Design

- July 1998 - Draft Engineering Design Report (EDR) completed, submitted to BRAC Cleanup Team (BCT) for comments
- December 1998 - Draft Final EDR submitted to BCT
- January 1999 - BCT concurrence of EDR

Remedial Action

- Objectives
  - reduce VOCs in source area to prevent further contamination of groundwater
  - reduce average VOC soil gas concentrations below threshold values
- Public Notice released January 16, 1999
- RA starts by March 30, 1999

Remedial Action Consultants

- **EARTH TECH**
- Operate and Maintain SVE System
- Monitor Performance
- System Optimization
- Progress Reporting
- Closeout Report

- **IT/OHM**
- **Support Construction of SVE Wells/Piping**
- **Vapor Sampling & Analysis**
- **Waste Management**
- **Portable SVE Operations**
- **Misc. Support Activities**

Work in Progress

- Oct 1998 - Delivered Norton AFB SVE Treatment System to MCAS El Toro
- Dec 1998 - Central SVE system assembled, tested on ambient air
- Jan 1999 - SVE system connected to existing SVE wells for testing under "live", low-flow conditions
- Oct 1998 - Jan 1999 - Rebound tests at selected wells

Current Conditions

- Overall VOC concentrations have decreased, site-wide, due to the SVE pilot tests
- Total number of new SVE wells may be less than designed in the EDR
- New wells will be installed incrementally, in multiple phases
- Remediation objectives may be met sooner than stated in the ROD

What's Next

- Continue data gathering, system testing and optimization
- System Evaluation and Optimization Report (SEOR) prior to remediation
- Start Remediation
- Periodic Progress Reports
- 6 month update of SEOR

Initial SVE Pilot Test

- June 1996 - 19 day SVE pilot test at Well# 24SVE1
- Achieved air flow of 250 scfm at 30 IWG
- TCE concentrations decreased from 1,150 ug/l to 402 ug/l
- Removal of 225 lbs. of TCE from vadose zone

Continuing SVE Pilot Tests

- Continuation of Pilot test at various wells
- Well# 24SVE1 run for 164 days between June 1996 and November 1998
- Last measured TCE was 8.7 ug/l
- 435 lbs. of TCE removed (through 1997)

Continuing SVE Pilot Tests

- Well# 24SVE10 run for 72 days between November 1996 and December 1998
- Achieved air flow of 190 scfm at 50 IWG
- TCE concentrations decreased from 1,400 ug/l to 33 ug/l
- 308 lbs. of TCE removed (through May 1997)

Proposed Plan/Record of Decision

- SVE technology is the recommended alternative (Proposed Plan - May 1997)
- SVE is the selected remedy for remediation of Site 24 Soil (September 1997 - Interim ROD)

UPDATE ON ENVIRONMENTAL RESTORATION PROGRAM AT MARINE CORPS AIR STATION EL TORO

Fact Sheet **January 1999**

Marine Corps to Proceed with Interim Remedial Action at Site 24

The U.S. Marine Corps announces its intent to start Remedial Action at Installation Restoration Program Site 24, Volatile Organic Compound (VOC) Source Area, by the end of March 1999. Soil Vapor Extraction (SVE) will be utilized to remediate the VOC-contaminated soil at the site.

Site Background

Site 24, VOC Source Area, comprises approximately 200 acres and is located in the southwest quadrant of the Station. Aircraft and support vehicle maintenance utilizing industrial solvents were conducted at Site 24 from the late 1940s to the mid-1970s. Solvents, including trichloroethene (TCE), and other VOCs were used for degreasing parts, paint stripping, and aircraft washing. Releases of VOCs at the site contaminated the subsurface soils (vadose zone) in the vicinity of two large aircraft hangars Buildings 296 and 297. VOCs in the soil have, over time, migrated down into the shallow aquifer, creating a VOC plume in the groundwater that extends approximately 3 miles to the west from Site 24 (see map below).

Interim Remedial Action Objective

The Interim Remedial Action objective at Site 24 is to reduce the concentration of VOCs in the soil to prevent or significantly minimize further impact to groundwater. The term "interim" is used because only soil remediation is addressed in this remedial action. Groundwater remediation at Site 24 will be accomplished in a subsequent remedial action.

Soil Vapor Extraction (SVE) Technology

The Marine Corps' preferred technology for remediating the soil contamination at Site 24 is Soil Vapor Extraction, also called SVE. VOCs are removed from the vadose zone by applying a vacuum to a network of underground extraction wells and pulling the vapors to the surface. Vapors are then passed through an activated carbon treatment system (to remove the contaminants from the vapor stream) prior to discharge to the atmosphere as clean air. Regularly scheduled air quality monitoring will verify the effective operation of the carbon treatment system.

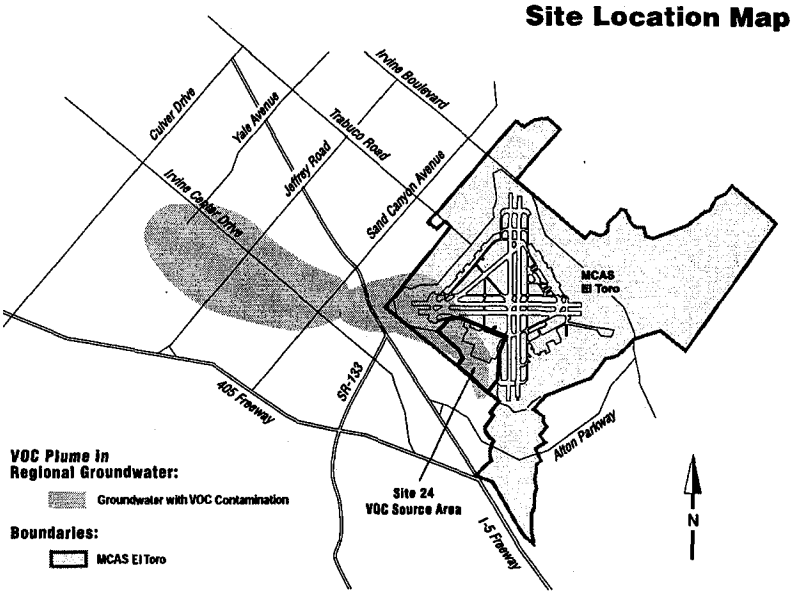
Pilot Tests Conducted

SVE pilot tests were conduced at the site from 1996-1998 to evaluate the feasibility of using this technology at Site 24. Twenty-one SVE wells were tested for 2 to 12 week intervals and approximately 870 pounds of TCE were removed from the vadose zone, confirming that SVE is a viable technology to remediate soil at Site 24.

Remedial Design Completed

Remediation of the site will be conducted in accordance with the Proposed Plan, Record of Decision and Remedial Design documents that underwent regulatory agency review and concurrence. The Remedial Design phase was recently completed when the *Draft Final Engineering Design Report (EDR), Vadose Zone Remediation, Site 24 (December 1998)* was finalized with concurrence by the U.S. EPA and Cal-EPA's Department of Toxic Substances Control and the Regional Water Quality Control Board. This report describes how SVE will be implemented at MCAS El Toro.

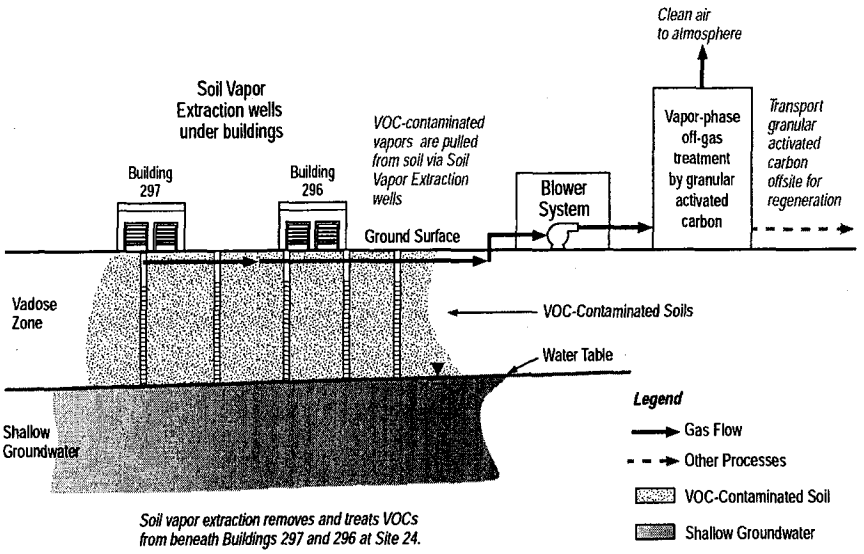
Site Location Map



SVE Treatment System

MCAS El Toro will utilize the same SVE treatment system that was successfully used to remediate VOC-contaminated soils at Norton Air Force Base in San Bernardino, California. Assembly of the system at Building 296 has been completed. Testing and treatment system optimization on ambient air is currently ongoing. When remediation of Site 24 soil begins, the SVE treatment system will be connected to a pre-determined number of extraction wells. Vacuum pressures, air flow rates, vapor concentrations and other performance parameters will be measured and evaluated. Additional wells will be installed and connected to the system, in multiple phases, based on system performance and rate of remediation. The system is scheduled to be operational by the end of March 1999 and will operate until the remedial action objectives have been met. The remediation phase is expected to take about 2 years to complete at an estimated cost of $5 million dollars.

SVE Treatment Process – Site 24



Soil vapor extraction removes and treats VOCs from beneath Buildings 297 and 296 at Site 24.

Project Updates

Periodic reports will document remediation progress. Updates will be provided at Restoration Advisory Board (RAB) meetings. The community-based RAB brings together the diverse interests of the community to discuss key aspects of MCAS El Toro's Installation Restoration Program. Meetings are open to the public and scheduled from 6:30-9:00 p.m. on the last Wednesday of the month (bimonthly) at the Irvine City Hall Conference and Training Center. RAB meetings are currently scheduled for March 31, May 26, and July 28, 1999.

Where to Get More Information

Copies of documents that support the remediation efforts at Site 24, including the Proposed Plan, Record of Decision, Remedial Design documents, and the Remedial Investigation and Feasibility Study Reports, are available at the following locations:

- Heritage Park Regional Library, 14361 Yale Avenue, Irvine, CA 92714, (949) 551-7151
- MCAS El Toro Administrative Record File, Environment and Safety Department, Contact: Mr. Joseph Joyce (see below)

Project Contacts:

- Mr. Joseph Joyce, BRAC Environmental Coordinator, MCAS El Toro (949) 726-3470
- Lt. Adrienne Dewey, BRAC Public Affairs Officer, MCAS El Toro (949) 726-3853
- Mr. Glenn Kistner, Remedial Project Manager, U.S. EPA (415) 744-2210
- Mr. Andrew Bain, Community Involvement Coordinator, U.S. EPA 1-800 231-3075
- Ms. Marsha Mingay, Public Participation Specialist, Cal-EPA, Dept. of Toxic Substances Control (714) 484-5416

Commanding General
Attn: Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S, Environment (1AU)
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001

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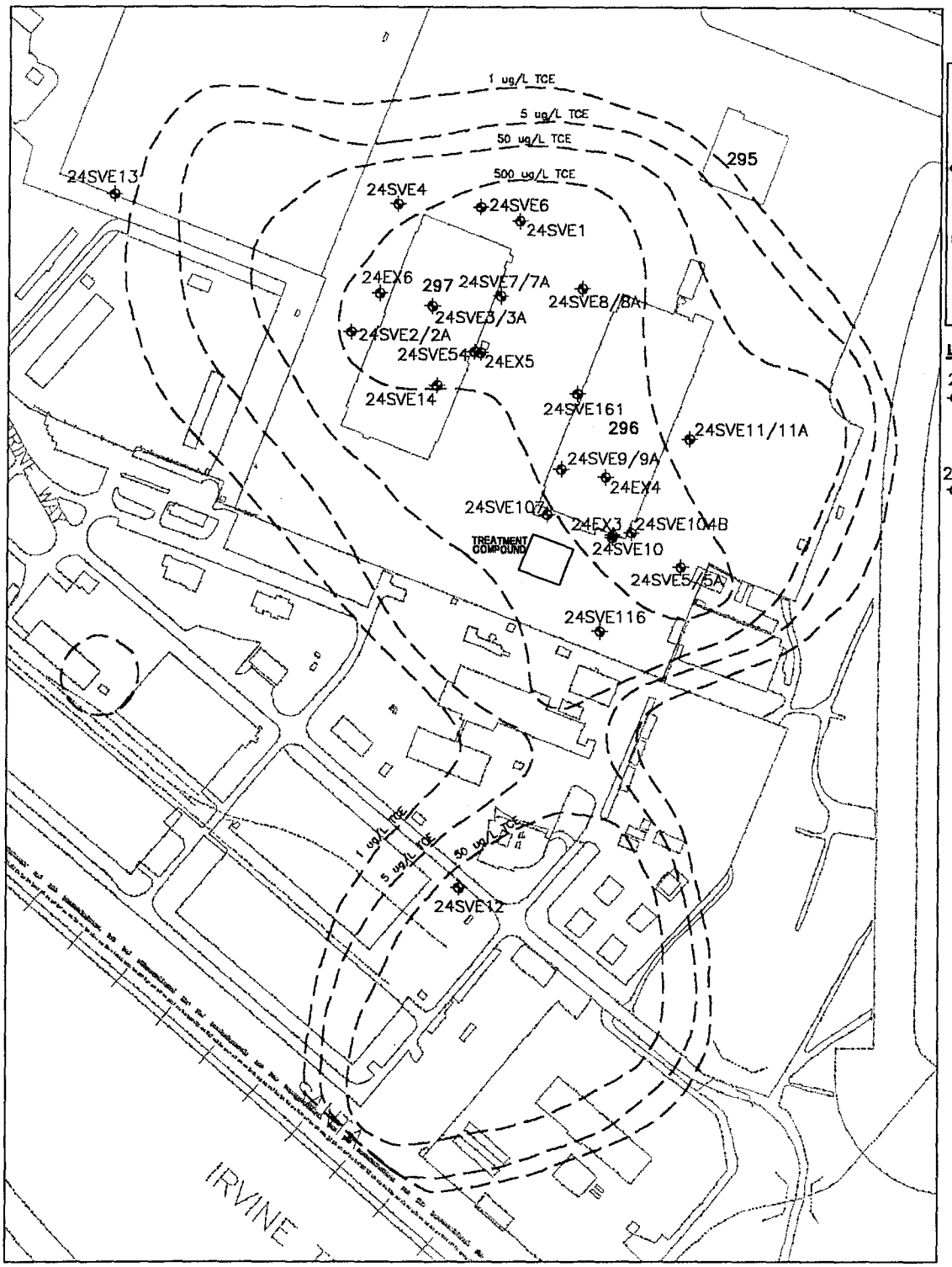

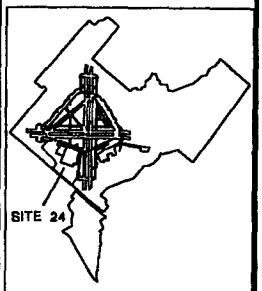

LEGEND

24SVE9
VAPOR EXTRACTION WELLS 0–100 ug/L TCE AND PCE (2)

24SVE4
VAPOR EXTRACTION WELLS GREATER THAN 100 ug/L TCE OR UNKNOWN (2)

CONTOURS (DASHED LINES --------) REPRESENT APPROXIMATE TCE VAPOR CONCENTRATIONS NEAR GROUNDWATER (IN ug/L) AS MEASURED IN 1995.

GRAPHIC SCALE
0 100 200 400
(IN FEET)

NOTES:
1. PRIMARY SOURCES OF MAP INFORMATION ARE THE DRAFT FINAL ENGINEERING DESIGN REPORT (BECHTEL, 1998) AND THE DRAFT GROUNDWATER REMEDIATION PILOT TEST REPORT (BECHTEL, 1998).
2. CONCENTRATIONS FOR DUAL COMPLETION WELLS REPRESENT THE DEEPEST SCREENED ZONE.
3. LOCATIONS OF WELLS AND SURFACE FEATURES ARE INTENDED FOR ILLUSTRATION AND GENERAL USE ONLY. LOCATIONS OF WELLS ARE APPROXIMATE.
4. GROUNDWATER EXTRACTION WELLS 24EX3, 24EX4, 24EX5 AND 24EX6 ARE PRESENTED ON THIS MAP BECAUSE THEY ARE LOCATED INSIDE OF THE 500 MICROGRAM PER LITER CONTOUR FOR TCE (AS ESTABLISHED DURING THE REMEDIAL INVESTIGATION OF 1995) AND BECAUSE VACUUM-ENHANCED GROUNDWATER EXTRACTION UTILIZING A PORTABLE SOIL VAPOR EXTRACTION (SVE) TREATMENT SYSTEM WAS CONDUCTED AT THESE WELLS DURING THE PILOT TESTS OF 1997 AND 1998.

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

MCAS EL TORO, CA

TCE VAPOR CONCENTRATIONS IN THE DEEP VADOSE ZONE AS OF DECEMBER 1998
VADOSE ZONE REMEDIATION – IRP SITE 24

FILE NO.	EXHIBIT 1	DATE
18292118.DWG		

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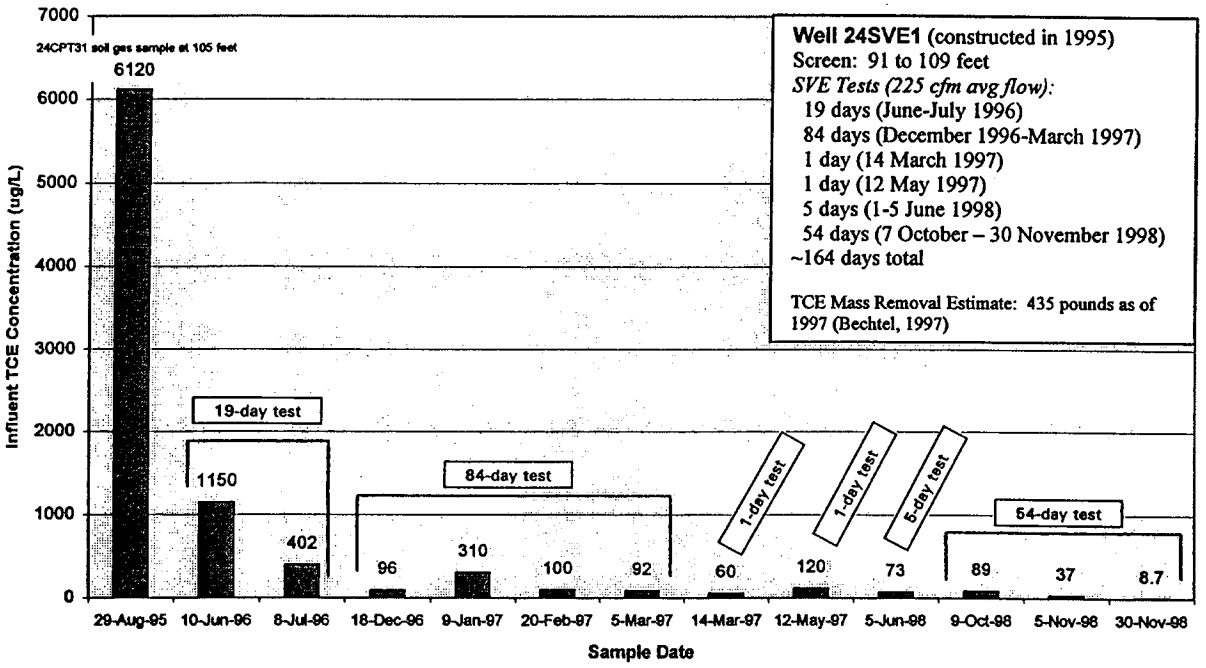
Jan 18, 1999 – 14:14:49 F:\17486133.dwg

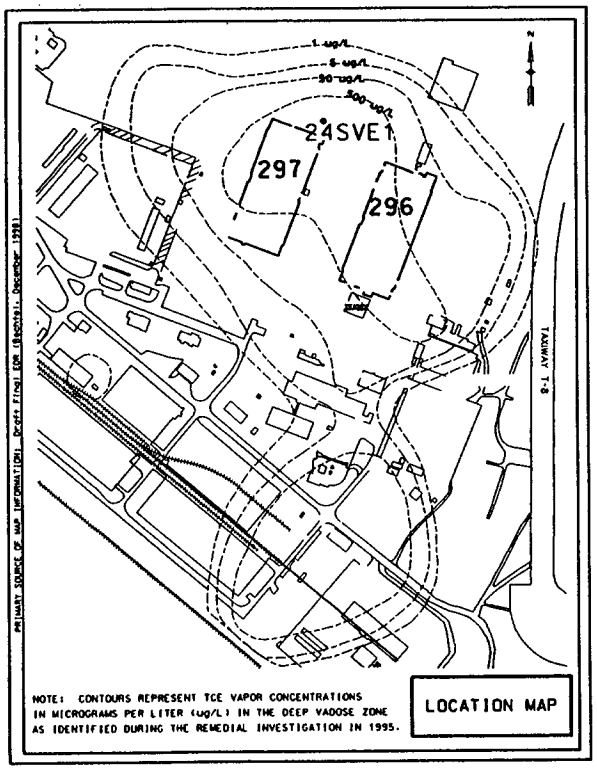
SOUTHWESTNAVFACENGCOM
Code 56MC.LMH
Telephone: (619) 532-4162/Fax: (619) 532-4160

File: svelog2

PRELIMINARY – FOR DISCUSSION ONLY

Soil Gas Data (1995) with Selected Influent TCE Concentrations at Well 24SVE1, MCAS El Toro
NOTE: TARGET CLEANUP LEVEL FOR TCE IS 27 ug/L





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Code 56MC.LMH
Telephone: (619) 532-4162/Fax: (619) 532-4160

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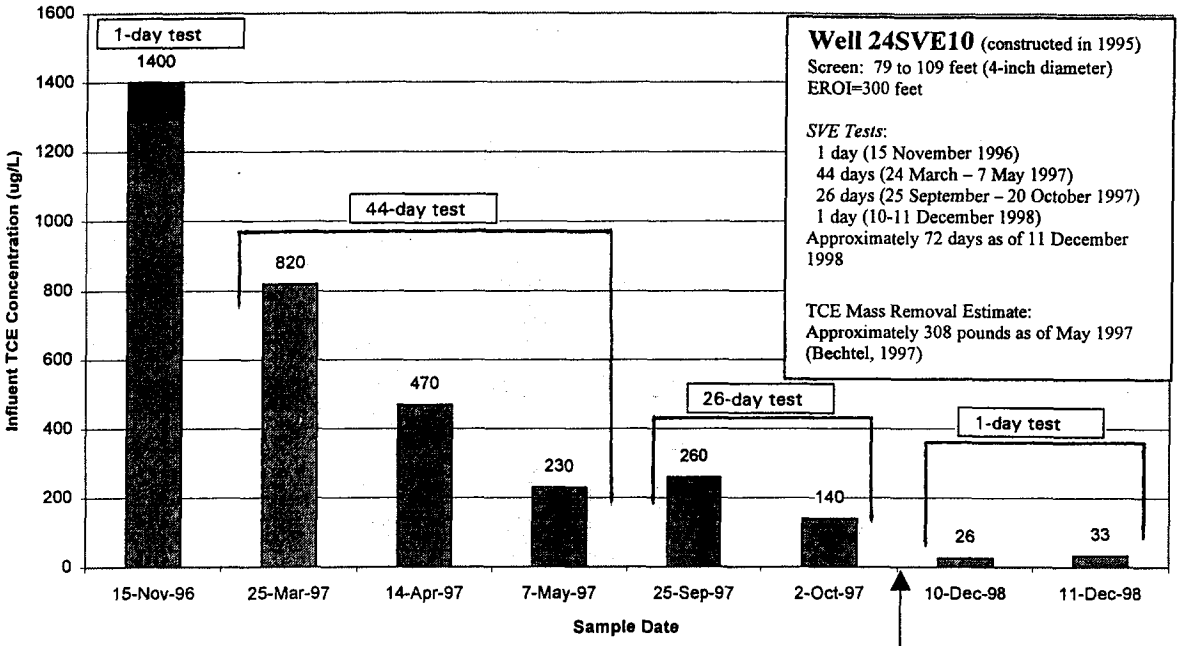
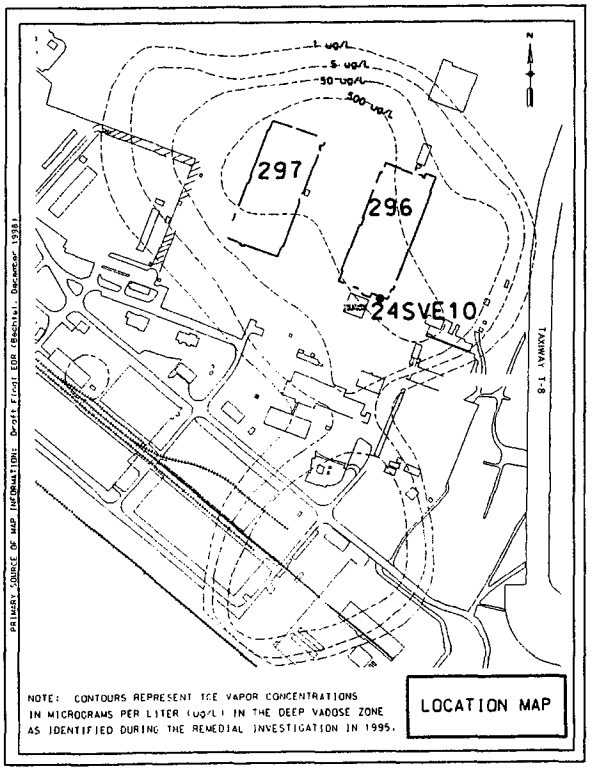
PRELIMINARY – FOR DISCUSSION ONLY

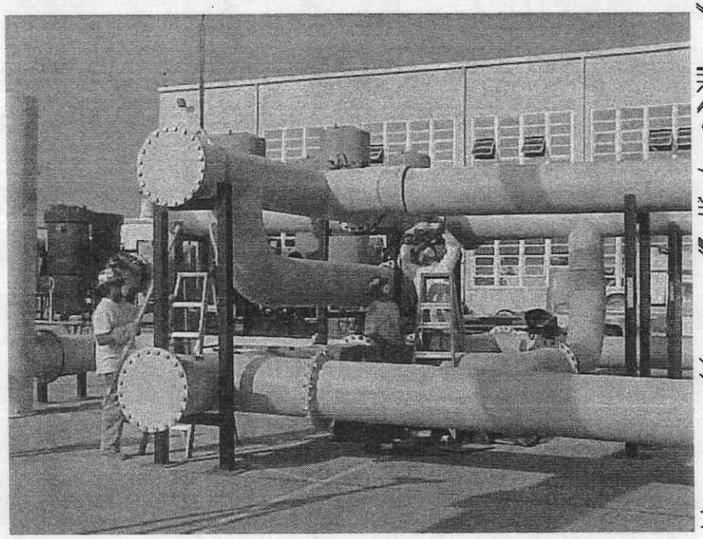
Selected Influent TCE Concentrations at Well 24SVE10, MCAS El Toro

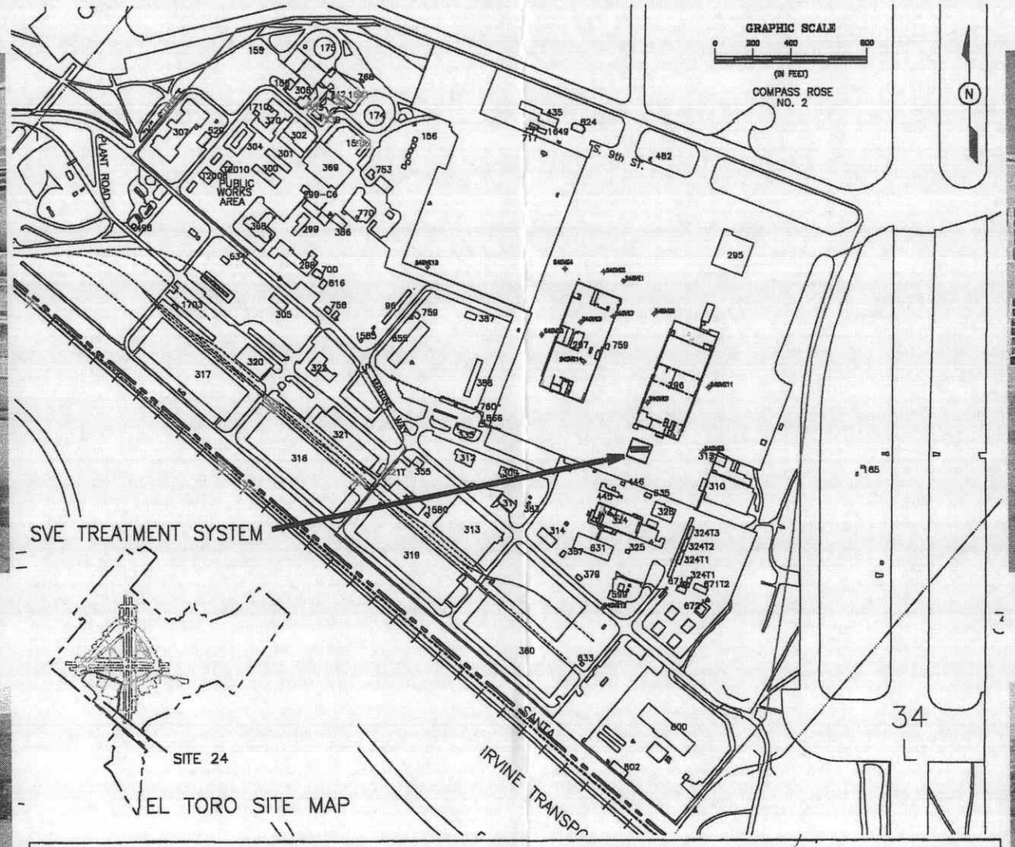


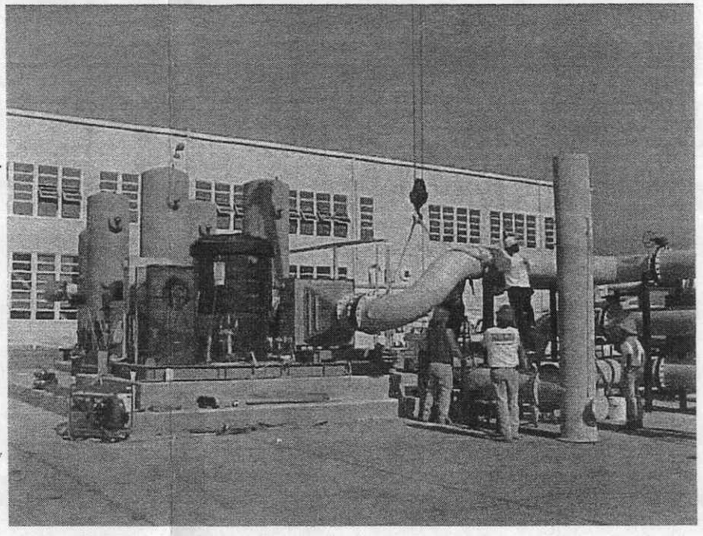
Note: Vacuum-enhanced groundwater extraction test was conducted at nearby *Well 24EX3* during the period from 22 October 1997 through 15 May 1998

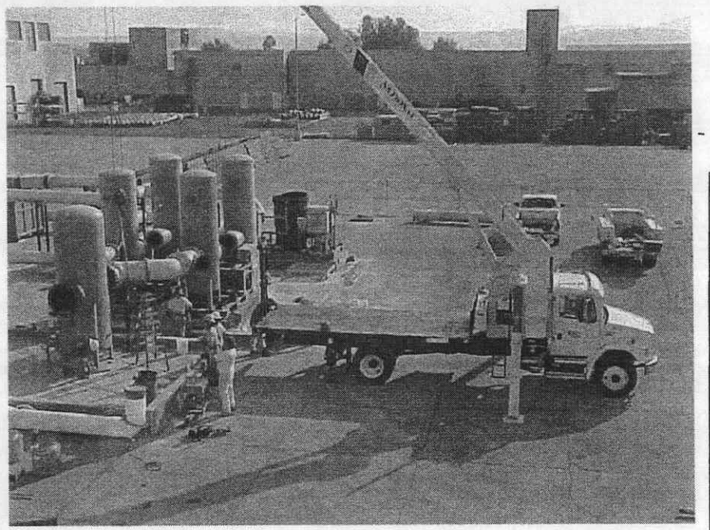


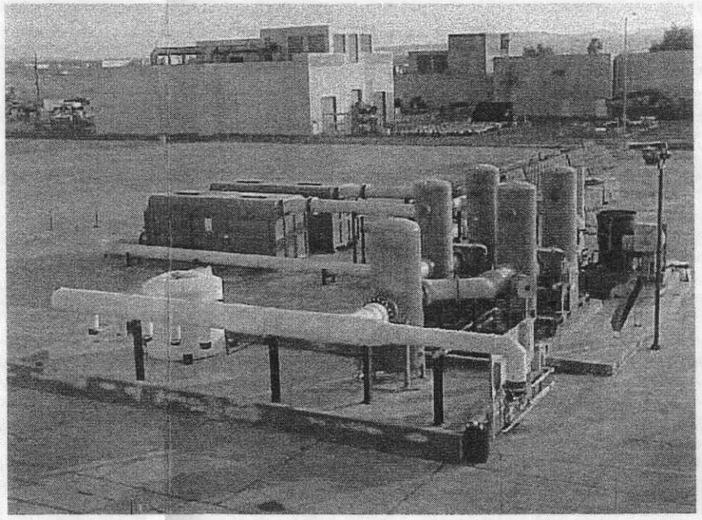
Assembly of Central SVE Treatment System

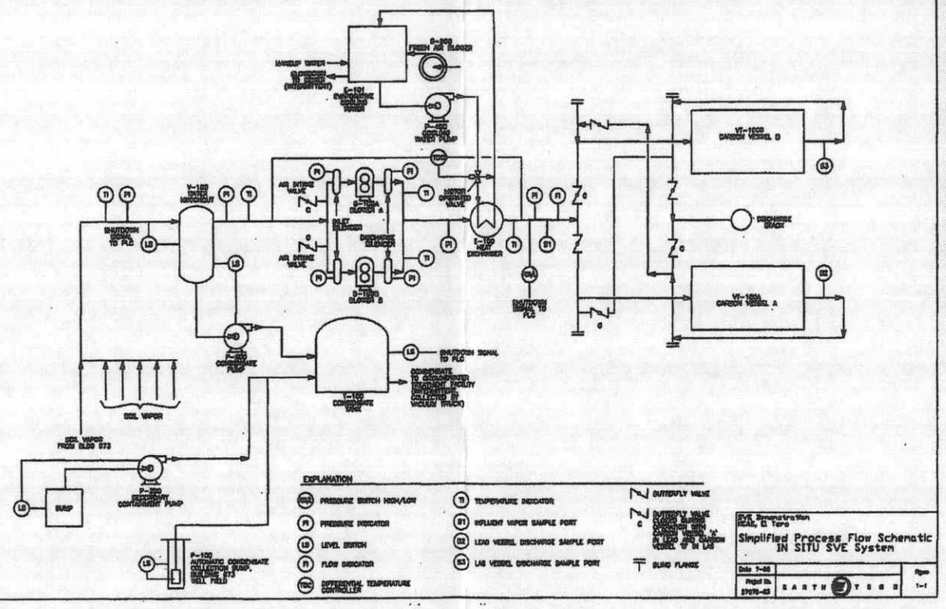












SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

MCAS EL TORO, CA

SOIL VAPOR EXTRACTION
TREATMENT SYSTEM
SITE 24 – VOC SOURCE AREA

FILE NO.		DATE
18292116.DWG		

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United States Environmental Protection Agency | Office of Solid Waste and Emergency Response | Directive: 9335.3-02FS-1 May 1990

EPA

A Guide to Developing Superfund Records of Decision

Office of Emergency and Remedial Response
Hazardous Site Control Division

Quick Reference Fact Sheet

EPA issues the Record of Decision (ROD) as the final remedial action plan for a site or operable unit. The ROD summarizes the problems posed by the conditions at a site, the alternative remedies considered for addressing those problems, and the comparative analysis of those alternatives against nine evaluation criteria. The ROD then presents the selected remedy and provides the rationale for that selection, specifically explaining how the remedy satisfies the requirements of section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

This guide provides ROD preparers with a quick reference to the essential ROD components. The information to be included in each of the three major sections of a ROD is summarized below. Close attention should be given to the sections in which alternatives are described, risk information is presented, the comparative analysis against the nine evaluation criteria is summarized, and the declaration of statutory determinations is made. Additional information on ROD preparation is provided in Chapters 6, 7, and 9 of the "Interim Final Guidance on Preparing Superfund Decision Documents" (the "ROD Guidance") (OSWER Directive 9335.3-02, November, 1989, EPA/540/G-89/007).

THE DECLARATION

The Declaration is a formal statement signed by the EPA Regional Administrator (RA) or Assistant Administrator (AA) of the Office of Solid Waste and Emergency Response (OSWER) that identifies the selected remedy and indicates that the selection was carried out in accordance with the statutory and regulatory requirements of the Superfund program. The State Director may also sign the Declaration, if appropriate. The Declaration should be approximately two pages long and should include the information provided in **Highlight 1.**

Highlight 1: Outline and Sample Language for the Declaration of the Record of Decision

Site Name and Location

Statement of Basis and Purpose

"This decision document presents the selected remedial action for the [site], in [location], which was chosen in accordance with CERCLA, as amended by SARA, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for this site."

"The State/Commonwealth of _____ concurs with the selected remedy."

Assessment of the Site

"Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment."

Description of the Selected Remedy

- Describe the role of this operable unit within the overall site strategy. (Does this operable unit address the principal threats posed by the site?)
- Describe the major components of the selected remedy in bullet fashion.

Statutory Determinations

- When the selected remedy satisfies the statutory preference for treatment as a principal element by addressing the principal threat(s) at the site with treatment, the Declaration should state:

  "The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action [or "a waiver can be justified for whatever Federal and State applicable or relevant and appropriate requirement that will not be met"], and is cost-effective. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technology to the maximum extent practicable, and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element."

  (or)

- When a remedy involving little or no treatment is selected (i.e., treatment is not utilized to address the principal threat(s)), CERCLA, as amended by SARA, requires a statement and rationale explaining why a remedial action involving such reductions was not selected. The Declaration should state:

  "The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action [or "a waiver can be justified for whatever Federal and State applicable or relevant and appropriate requirement that will not be met"], and is cost-effective. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies, to the maximum extent practicable for this site. However, because treatment of the principal threats of the site was not found to be practicable [or "within the limited scope of this action"], this remedy does not satisfy the statutory preference for treatment as a principal element."

- If the remedy will leave hazardous substances on-site above health-based levels, the Declaration should include the following:

  "Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment."

  (or)

- If the remedy will not leave hazardous substances on-site above health-based levels, the Declaration should include the following:

  "Because this remedy will not result in hazardous substances remaining on-site above health-based levels, the five-year review will not apply to this action."

_____
(Signature of Assistant/Regional Administrator)

_____
(Signature of State Director (if appropriate))

_____
Date

(Note: Attach the State's letter of concurrence to the Record of Decision package)

THE DECISION SUMMARY

The Decision Summary provides an overview of the problems posed by the conditions at a site, the remedial alternatives, and the analysis of those options. The Decision Summary explains the rationale for the selection and how the selected remedy satisfies statutory requirements. The information to be presented in each of the sections of the Decision Summary is outlined below. In most cases, much of the information presented can be summarized from the Remedial Investigation/Feasibility Study (RI/FS).

Site Name, Location, and Description. Briefly describe the site in terms of:

- Name, location, address (include maps, a site plan, or other graphic descriptions, as appropriate);
- Area and topography of the site, especially if it is located within a floodplain or wetlands;
- Adjacent land uses;
- Natural resource uses;
- Location and distance to nearby human populations;
- General surface-water and ground-water resources; and
- Surface and subsurface features (e.g., number and volume of tanks, lagoons, drums, or other structures).

Site History and Enforcement Activities. Summarize the following:

- History of site activities that led to current problems;
- History of Federal and State site investigations and removal and remedial actions conducted under CERCLA or other authorities; and
- History of CERCLA enforcement activities at the site, including:
  - The results of searches for potentially responsible parties (PRPs); and
  - Whether special notices have been issued to PRPs.

Highlights of Community Participation. Summarize the major public participation activities, as follows:

- Describe how the public participation requirements of CERCLA sections 113(k)(2)(B)(i-v) and 117 were met in the remedy selection process.

Note: Community response to the selected remedy should be addressed under the "community acceptance" criterion in the Comparative Analysis section of the ROD. Responses to community concerns should be addressed in the "Responsiveness Summary" of the ROD.

Scope and Role of Operable Unit [or Response Action] Within Site Strategy.

- Describe the role of the remedial action within the overall site clean-up strategy.
- Summarize the scope of the problems addressed by the remedial action selected. Will the action address any of the principal threats posed by conditions at the site?

Note: The Statutory Determinations section of the ROD should explain whether or not the selected remedy satisfies the statutory preference for remedies employing treatment that reduces toxicity, mobility, or volume as a principal element. By indicating whether the principal threat(s) will be addressed by the action, the Scope and Role section of the Decision Summary should provide the basis for that statutory determination.

Summary of Site Characteristics. Highlight the following factors:

- All known or suspected sources of contamination;
- Contamination and affected media, including:
  - Types and characteristics (e.g., toxic, mobile, carcinogenic, non-carcinogenic) of contaminants;
  - Volume of contaminated material; and
  - Concentrations of contaminants;
- Location of contamination and known or potential routes of migration, including:
  - Population and environmental areas that could be affected, if exposed;
  - Lateral and vertical extent of contamination; and
  - Potential surface and subsurface pathways of migration.

Include maps, charts, tables, and other graphic descriptions, as appropriate.

Summary of Site Risks. Summarize the results of the baseline risk assessment conducted for the site.

Human Health Risks:

- Identify the concentrations of the contaminants (indicator chemicals) of concern in each medium of exposure;
- Summarize results of the exposure assessment;
- Summarize the toxicity assessment of contaminants of concern;
- Summarize risk characterization for each pathway by population and the total risk for the site, including:
  - Potential or actual carcinogenic risks;
  - Noncarcinogenic risks; and
  - Brief explanation of the meaning of key risk terms.

Environmental Risks:

- Summarize the effects of the contamination on critical habitats; and
- Summarize the effects of the contamination on any endangered species.

Note: This summary of the baseline risk assessment provides the rationale for the lead agency's either undertaking a response action or taking no action.

Description of Alternatives. The objective of this section is to provide an understanding of the remedial alternatives developed for the site and their specific components. Each alternative should be described in terms of the components listed below. **Figure 1** is an example of elements to be addressed in this section.

- **Treatment components.** Describe the following, as appropriate:
  - Treatment technologies (e.g., thermal destruction) that will be used;
  - Type and volume of waste to be treated;
  - Process sizing; and
  - Primary treatment levels (e.g., best demonstrated available technology [BDAT], percentage or order of magnitude of concentration reductions expected).
- **Containment or storage components.** Describe the following, as appropriate:
  - Type of storage (e.g., landfill, tank, surface impoundment, containers);
  - Type of closure that will be implemented (RCRA Subtitle C clean closure, landfill closure, Subtitle D solid waste closure);
  - Type and quantity of waste to be stored; and
  - Quantity of untreated waste and treatment residuals to be disposed off-site or managed on-site in a

containment system (cap., minimum technology unit, etc.) and the degree of hazard remaining in such waste.

- **Ground-water component.** Describe the following, as appropriate:
  - Ground-water classification (e.g., Class I, II, or III);
  - Remediation goals (e.g., Maximum Contaminant Levels [MCLs]);
  - Estimated restoration timeframe; and
  - Area of attainment
- **General components.** Describe the following, as appropriate, for each of the three previous components:
  - Contaminated media addressed (and physical location at the site);
  - Risk reduction (including initial risk);
  - Whether treatability testing has been or will be conducted;
  - Implementation requirements;
  - Institutional controls;
  - Residual levels (e.g., delisting, BDAT);
  - Assumptions, limitations, uncertainties;
  - Estimated implementation timeframe; and
  - Estimated capital, O&M, and present-worth costs.
- **The major applicable or relevant and appropriate requirements (ARARs), risk-based levels, and other "to be considered" (TBCs) being met/utilized for the specific components of the remedial alternative.**
  - The description should summarize how the specific components of the alternative will comply with the major ARARs, as well as briefly describe why the standard is applicable or relevant and appropriate (e.g., placing a RCRA characteristic waste, thus RCRA closure is applicable).

Summary of Comparative Analysis of Alternatives. In this section, summarize the relative performance of the alternatives by highlighting the key differences among the alternatives in relation to the nine evaluation criteria. An effective way of organizing this section is to present a series of paragraphs headed by each criterion. Under each criterion, the alternative that performs best in that category should be discussed first, with other options discussed in sequence. Refer to the RI/FS and ROD guidance documents for additional information on the factors included in each of the nine criteria. The nine evaluation criteria are summarized below.

Threshold Criteria

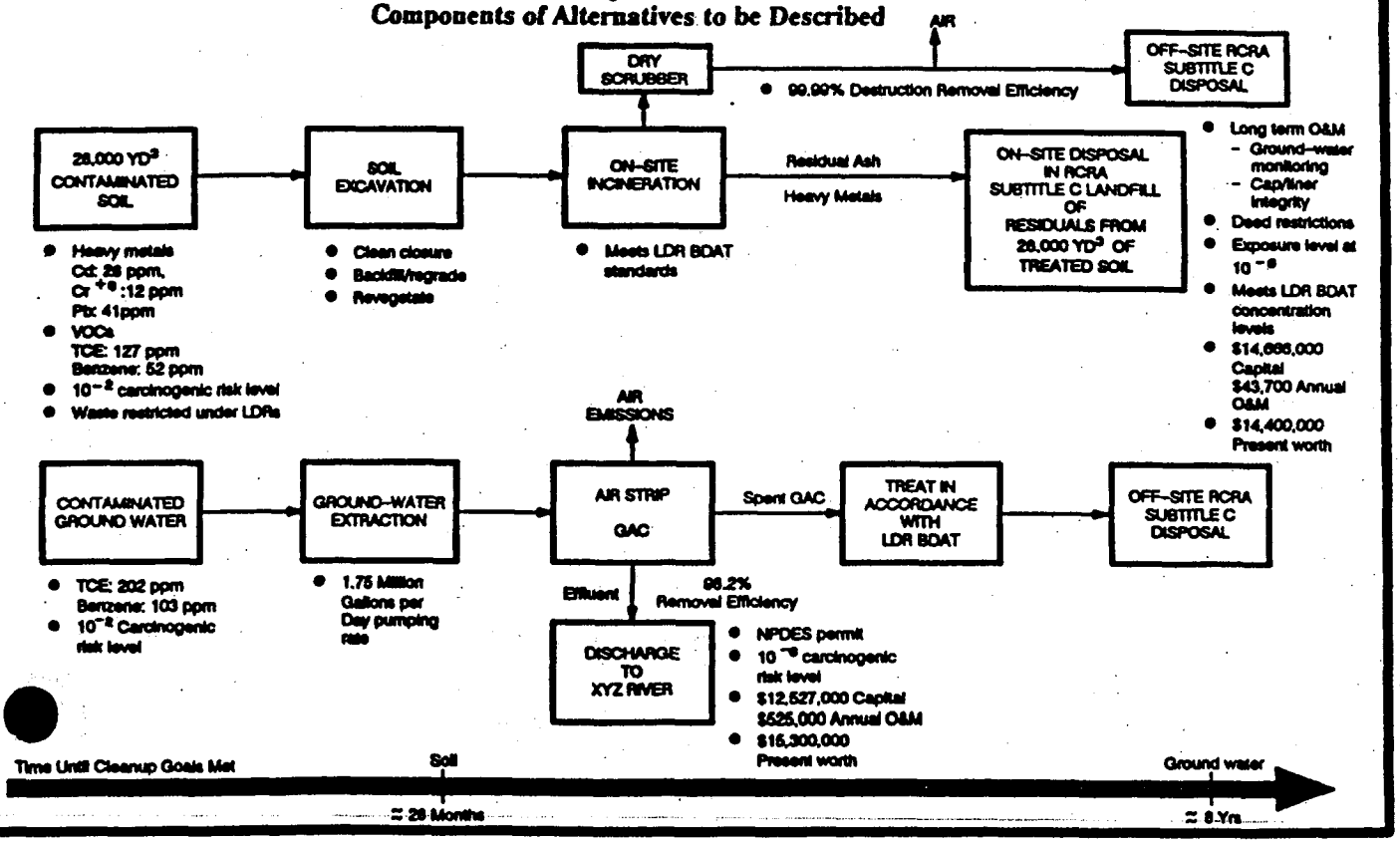
- **Overall protection of human health and the environment** addresses whether a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
- **Compliance with applicable or relevant and appropriate requirements (ARARs)** addresses whether a remedy will meet all of the ARARs of other Federal and State environmental laws and/or justifies a waiver.

Primary Balancing Criteria

- ***Long-term effectiveness and permanence*** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up goals have been met.
- **Reduction of toxicity, mobility, or volume through treatment** is the anticipated performance of the treatment technologies a remedy may employ.
- **Short-term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until clean-up goals are achieved.
- **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
- **Cost** includes estimated capital and O&M costs, as well as present-worth costs.

Figure 1

Components of Alternatives to be Described



Modifying Criteria

- **State/Support Agency Acceptance** should be used to indicate the support agency's comments. Where the State or Federal agency is the lead for the ROD, EPA's acceptance of the selected remedy should be addressed under this criterion.

- **Community Acceptance** summarizes the public's general response to the alternatives described in the Proposed Plan and RI/FS Report. The specific responses to public comments should be addressed in the Responsiveness Summary section of the ROD.

Notes: In addressing the long-term effectiveness and permanence of an alternative, the term "permanence" should be used carefully. Permanence is viewed along a continuum; an alternative can be described as offering a greater or lesser degree of long-term effectiveness and permanence. Alternatives generally should not be described as "permanent" or "impermanent."

Only reductions achieved through treatment should be addressed under the "reduction of toxicity, mobility, or volume through treatment" criterion. Reductions of mobility accomplished through containment should be addressed under "overall protection of human health and the environment."

The Selected Remedy. In this section of the ROD, identify the selected remedy and remediation goals and state:

- The carcinogenic risk level to be attained and the rationale for it; and
- The specific points of compliance, as appropriate, for the media being addressed (e.g., "MCLs will be met at the edge of the waste management area").

The Statutory Determinations. The remedy selected must satisfy the requirements of section 121 of CERCLA to:

- Protect human health and the environment;
- Comply with ARARs (or justify a waiver);
- Be cost-effective;
- Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and
- Satisfy the preference for treatment as a principal element or justify not meeting the preference.

A description of how the selected remedy satisfies each of the statutory requirements should be provided. Points to address for each of these requirements are presented in **Highlight 2.**

Documentation of Significant Changes. CERCLA section 117(b) requires an explanation of any significant changes from the preferred alternative originally presented in the Proposed Plan. If the selected remedy reflects significant changes from the preferred alternative, the ROD should:

- Identify the preferred alternative originally presented in the Proposed Plan;
- Describe the significant changes; and
- Explain the reason(s) for such changes.

THE RESPONSIVENESS SUMMARY

The final component of the ROD is the Responsiveness Summary, which serves two purposes. First, it provides lead agency decisionmakers with information about community preferences regarding both the remedial alternatives and general concerns about the site. Second, it demonstrates to members of the public how their comments were taken into account as an integral part of the decision making process.

Guidance on preparing Responsiveness Summaries is available in Community Relations in Superfund: A Handbook (OSWER Directive 9230.0-3B, June 1988). That document details the process of preparing the Responsiveness Summary and includes a sample Responsiveness Summary.

Highlight 2: The Statutory Determinations

Protection Of Human Health And The Environment

- Describe how the selected remedy will eliminate, reduce, or control risks posed through each pathway through treatment, engineering controls, or institutional controls, to ensure adequate protection of human health and the environment (including that the site risk will be reduced to within the 10-4 to 10-6 range for carcinogens, and that the Hazard Indices for non-carcinogens will be less than one).
- Indicate that no unacceptable short-term risks or cross-media impacts will be caused by implementation of the remedy.

Compliance with ARARs

- State whether the selected remedy will comply with ARARs. When appropriate, state the waiver that is being invoked and justify the waiver. Organize the ARARs according to chemical-specific, location-specific, and action-specific.
- List and describe the Federal and State ARARs that the selected remedy will attain, distinguishing applicable from relevant and appropriate requirements, as necessary. **Note:** Cite the specific section of the statute or regulation that contains the requirement and provide a brief synopsis of the requirement.
- List and provide the rationale for using any "to be considered" (TBCs). **Note:** TBCs are not ARARs, but they may be used to design a remedy or set clean-up levels if no ARARs address the site, or if existing ARARs do not ensure protectiveness.

Cost-Effectiveness

- Describe how the selected remedy provides overall effectiveness proportionate to its costs, such that it represents a reasonable value for the money to be spent.

Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable ("MEP")

- Describe the rationale for the remedy selection, explaining that the remedy selected provides the best balance of tradeoffs among the alternatives with respect to the evaluation criteria, especially the five balancing criteria.
- Discuss those criteria that were most critical in the selection decision (i.e., those that distinguish the alternatives most).
- Highlight the tradeoffs among the alternatives with respect to the five balancing criteria.
- Describe the role of the State and community acceptance considerations in the decision-making process (modifying criteria).
- Provide a general statement that the selected remedy meets the statutory requirement to utilize permanent solutions and treatment technologies, to the maximum extent practicable.

Note: For a remedy that does not employ any treatment or resource recovery technologies, the explanation of the rationale should discuss the reasons why treatment was found to be impracticable or acknowledge that treatment was not within the limited scope of the action (e.g., an interim action).

Preference for Treatment as a Principal Element

- Describe how the preference for treatment is satisfied if the remedy uses treatment to address the principal threat(s) posed by conditions at the site; or
- Explain why the preference is not satisfied if treatment is not used to address the principal threats. This explanation will refer back to the explanation under the "MEP" finding that explains why treatment of the principal threats was found to be either impracticable or not within the limited scope of the action.

Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
Source Water Blank	1710001	<4[c]	U[d]	NA[e]	NA	Sample of de-ionized water used for sampling equipment decontamination
01_DGMW57	1712005	<4	U	4.53 4.31	6.01 5.06	Downgradient monitoring well at Site 1
Equipment Rinsate	1712003	<4	U	NA	NA	Rinsate sample associated with groundwater sample from well 01_DGMW57
01MW101	1712004	<4	U	2.77 2.89	<4[f]	Upgradient monitoring well at Site 1
01MW201	1712002	280		NA	NA	Intermediate well at Site 1(EOD Range) located adjacent to the area where ordnance disposal operations have been conducted
Equipment Rinsate	1712001	<4	U	NA	NA	Rinsate sample associated with groundwater sample from well 01MW201 and purging of well 01MW101.
02_DGMW59	1710003	<4	U	NA	NA	Site 2 well located downgradient(southwest) of the landfill footprint along the east side of Borrego Canyon Wash
02_DGMW60	1710014	<4	U	3.23 3.31	4.73[f]	Site 2 well located downgradient(southwest) of the landfill footprint along the west side of Borrego Canyon Wash
02_UGMW25	1710002	<4	U	NA	NA	Site 2 well located upgradient (northeast) of the landfill footprint
03_DGMW64	1710019	12		NA	NA	Site 3 well located downgradient (northwest) of the landfill footprint between North Marine Way and Irvine Boulevard
03_DGMW65X	1710018	4		NA	7.46[f]	Site 3 well located downgradient (northwest) of the landfill footprint between North Marine Way and Irvine Boulevard
03_UGMW26	1710017	4		NA	NA	Upgradient well for the Site 3 landfill located on the north side of Irvine Boulevard across from the Desert Storm Gate in the base housing area
05_DBMW41	1710029	<4	U	NA	NA	Intermediate location along downgradient side of Site 5 landfill footprint
05_UGMW27	1710035	<4	U	NA	NA	Site 5 well located upgradient of the landfill on the east side of Perimeter Road
05NEW1	1710031	5		NA	5.32[f]	Site 5 well located downgradient from the southwest corner of the landfill
07_DBMW100	1710058	6		NA	NA	On-Station well (southwest quadrant) located east of the north-south runways in a vehicle parking area south of the aircraft parking apron on the west side of Building 296

(table continues)

Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
09_DBMW45	1710040	<4	U	NA	NA	On-Station well located south of Taxiway T-5 and west of Building 435 (Crash Crew) at the former location of Crash Crew Pit No. 1
09_DGMW75	1710042	3	J[g]	NA	NA	On-Station well located north of inground water reservoir 175 adjacent to the intersection of Taxiway T-5 and the E-W runways
16_DBMW52	1712008	<4	U	NA	8.09[f]	Site 16 well located adjacent to the former Crash Crew burn pit
17_DGMW82	1710010	<4	U	NA	<4 <4	Site 17 well located at the toe (downgradient, east end) of the landfill footprint
17NEW1	1710011	<4	U	NA	NA	Site 17 well located at the toe (downgradient, west end) of the landfill footprint
17NEW3Z	1710012	<4	U	NA	NA	Duplicate sample from well 17NEW1
17NEW2	1710009	<4	U	NA	NA	Site 17 well located upgradient (northeast) of the landfill footprint
18_BGMP06D	1711030	4	J	NA	NA	Off-Station downgradient multiport well located west of I-5 between Sand Canyon Ave. and Jeffrey Road. Lower sample port in Shallow Groundwater Unit
Equipment Rinsate	1711031	<4	U	NA	NA	Rinsate sample associated with groundwater sample from port 18_BGMP06D
18_BGMP06E	1711032	<4	U	NA	NA	Off-Station downgradient multiport well located west of I-5 between Sand Canyon Ave. and Jeffrey Road. Upper sample port in Shallow Groundwater Unit
Equipment Rinsate	1711033	<4	U	NA	NA	Rinsate sample associated with groundwater sample from port 18_BGMP06E
18_BGMP08D	1711034	<4	U	NA	NA	Off-Station crossgradient well located south of I-5 adjacent to SR-133. Lower sample port in Shallow Groundwater Unit
Equipment Rinsate	1711035	<4	U	NA	NA	Rinsate sample associated with groundwater sample from port 18_BGMP08D
18_BGMP10F	1711050	<4	U	NA	NA	Off-Station downgradient multiport well located in a park at the corner of Hearthstone and Irvine Center Drive – Port F is completed in the Principal Aquifer
18_BGMP10AZ	1711051	<4	U	NA	NA	Duplicate sample from well 18_BGMP10F
Equipment Rinsate	1711052	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well port 18_BGMP10F

(table continues)

Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
18_BGMW05D	1710046	<4	U	NA	NA	On-Station well (southwest quadrant) located near the southern Station boundary in the paved vehicle parking area behind Building 800
18_BGMW101	1710048	7		NA	NA	On-Station well located on the north side of West Marine Way between the western corner of the Station boundary and the end of the east-west runways
18_BGMW16	1710036	<4	U	NA	NA	On-Station well located between the north end of the N-S runways and North Marine Way
18_BGMW17	1712009	<4	U	NA	NA	On-Station background well located adjacent to Perimeter Road and Borrego Canyon Wash at the golf course
18_BGMW18	1710057	<4	U	NA	NA	On-Station well located just inside the MCAS El Toro main gate along the perimeter fence north of Trabuco Road
18_BGMW19D	1710055	<4	U	NA	NA	Off-Station downgradient cluster well located north of the school district vehicle yard just east of Sand Canyon Avenue - cluster well completed in the Shallow Groundwater Unit
18_BGMW19AZ	1710056	<4	U	NA	NA	Duplicate sample from well 18_BGMW19D
18_BGMW24	1712006	<4	U	NA	NA	On-Station (NE corner) background well located just outside the southeast corner of Site 1
18_DW135	1710045	13		NA	12.2[f]	On-Station cluster well (northwest quadrant) located south of IRP Site 14 and north of the east-west runways – cluster well completed in the Shallow Groundwater Unit
18_MCAS01-1	1711025	<4	U	NA	NA	Off-Station downgradient multiport well located along Irvine Center Drive within footprint of VOC plume - Port 3 is the uppermost port completed in the Shallow Groundwater Unit
18_MCAS01-3	1711021	<4	U	NA	NA	Off-Station downgradient multiport well located along Irvine Center Drive within footprint of VOC plume - Port 3 is the lowermost port completed in the Shallow Groundwater Unit
Equipment Rinsate	1711028	<4	U	NA	NA	Rinsate sample associated with groundwater samples from well ports 18_MCAS01-1, 18_MCAS01-3 and 18_MCAS01-6

(table continues)

Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
18_MCAS01-5	1711018	3	J	NA	NA	Off-Station downgradient multiport well located along Irvine Center Drive within footprint of VOC plume - Port 5 is completed in the Principal Aquifer
18_MCAS01-8Z	1711019	<4	U	NA	NA	Duplicate sample from 18_MCAS01-5
Equipment Rinsate	1711024	<4	U	NA	NA	Rinsate sample associated with groundwater sample from port 18_MCAS01-5
18_MCAS01-6	1711017	<4	U	NA	NA	Off-Station downgradient multiport well located along Irvine Center Drive within footprint of VOC plume - Port 6 is the lowermost port completed in the Principal Aquifer
18_MCAS02-1	1711014	<4	U	NA	NA	Off-Station downgradient multiport well located along Irvine Center Drive near intersection with Sand Canyon Avenue, within footprint of VOC plume - Port 1 is the uppermost port completed in the Shallow Groundwater Unit
Equipment Rinsate	1711015	<4	U	NA	NA	Rinsate sample associated with groundwater sample from port 18_MCAS02-1
18_MCAS02-3	1711011	<4	U	NA	NA	Off-Station downgradient multiport well located along Irvine Center Drive near intersection with Sand Canyon Avenue, within footprint of VOC plume - Port 3 is the lowermost port completed in the Shallow Groundwater Unit
Equipment Rinsate	1711012	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well port 18_MCAS02-3
18_MCAS02-4	1711008	<4	U	4.27 4.41	4.46[f]	Off-Station downgradient multiport well located along Irvine Center Drive near intersection with Sand Canyon Avenue, within footprint of VOC plume - Port 4 is the uppermost port completed in the Principal Aquifer
Equipment Rinsate	1711010	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well port 18_MCAS02-4
18_MCAS03-1	1711001	<4	U	NA	NA	Off-Station downgradient multiport well located at the southwest corner of MCAS El Toro, within footprint of VOC plume – Port 1 is the uppermost port completed in the Shallow Groundwater Unit
18_MCAS03-2	1711004	10		NA	NA	Off-Station downgradient multiport well located at the southwest corner of MCAS El Toro, within footprint of VOC plume – Port 2 is the intermediate port completed in the Shallow Groundwater Unit

(table continues)

Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
18_MCAS03-3	1711005	<4	U	NA	NA	Off-Station downgradient multiport well located at the southwest corner of MCAS El Toro adjacent to the newly constructed State Road 133, within footprint of VOC plume – Port 3 is the lowermost port completed in the Shallow Groundwater Unit
Equipment Rinsate	1711006	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well ports 18_MCAS03-2 and 18_MCAS03-3
18_MCAS03-4	1711002	<4	U	NA	NA	Off-Station downgradient multiport well located at the southwest corner of MCAS El Toro adjacent to the newly constructed State Road 133, within footprint of VOC plume – Port 4 is the uppermost port completed in the Principal Aquifer
Equipment Rinsate	1711003	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well ports 18_MCAS03-1 and 18_MCAS03-4
18_MCAS07-2	1711045	<4	U	NA	NA	Off-Station downgradient multiport well located in Ashwood Park just north of Briarwood, within footprint of VOC plume - Port 2 is the lower port completed in the Shallow Groundwater Unit
18_MCAS07-3	1711044	<4	U	NA	NA	Off-Station downgradient multiport well located in Ashwood Park just north of Briarwood, within footprint of VOC plume - Port 3 is the uppermost port completed in the Principal Aquifer
Equipment Rinsate	1711046	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well ports 18_MCAS07-2 and 18_MCAS07-3
18_MCAS07-4	1711042	<4	U	NA	NA	Off-Station downgradient multiport well located in Ashwood Park just north of Briarwood, within footprint of VOC plume - Port 4 is completed in the Principal Aquifer
Equipment Rinsate	1711043	<4	U	NA	NA	Rinsate sample associated with groundwater sample from Westbay well port 18_MCAS07-4
18_MCAS10	1712011	<4	U	NA	NA	Off-Station downgradient well located off Yale Avenue between Irvine Center Drive and Walnut Avenue (about 0.25 mile southeast of Yale Avenue south of the railroad tracks in a powerline easement) - well is completed in the Principal Aquifer

(table continues)

Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
Equipment Rinsate	1712010	<4	U	NA	NA	Rinsate sample associated with groundwater sample from well 18_MCAS10
19_DGMW86	1712014	13		NA	NA	On-Station well (southeast quadrant) located adjacent to the north-south runways near the middle of the airfield
Equipment Rinsate	1712013	<4	U	NA	NA	Rinsate sample associated with groundwater sample from well 19_DGMW86
21_DGMW90	1710047	6		NA	NA	On-Station well (southwest quadrant) located between the railroad tracks and South 15th Street just west of the former Materials Management Group storage yard behind Building 320
24_NEW8	1710039	<4	U	NA	NA	On-Station well located north of Building 435 (Crash Crew) between Taxiway T-5 and the E-W runways
24NEW4	1710043	2	J	NA	NA	On-Station well located in the aircraft parking apron west of Building 297
26_DBMW05 (DBPE sample)	1710051	26[h]	J	18.8	NA	Double-blind performance evaluation (DBPE) sample provided by U.S. EPA. U.S. EPA sample identification number was LF, sample ID at left is dummy ID assigned to this sample before submittal to the Navy's analytical laboratory. Spiked perchlorate concentration as prepared by the U.S. EPA contract laboratory was 20 µg/L
26_DGMW20 (DBPE sample)	1710053	16[h]	J	14.4	NA	DBPE sample provided by U.S. EPA. U.S. EPA sample identification number was LZA, sample ID at left is dummy ID assigned to this sample before submittal to the Navy's analytical laboratory. Spiked perchlorate concentration as prepared by the U.S. EPA contract laboratory was 15 µg/L
26_UGMW10 (DBPE sample)	1710050	12[h]	J	10	NA	DBPE sample provided by U.S. EPA. U.S. EPA sample identification number was L4, sample ID at left is dummy ID assigned to this sample before submittal to the Navy's analytical laboratory. Spiked perchlorate concentration as prepared by the U.S. EPA contract laboratory was 10 µg/L
26NEW1 (DBPE sample)	1710052	<4	U	<1	NA	DBPE sample provided by U.S. EPA. U.S. EPA sample identification number was LGO, sample ID at left is dummy ID assigned to this sample before submittal to the Navy's analytical laboratory. Spiked perchlorate concentration as prepared by the U.S. EPA contract laboratory was 0 µg/L

(table continues)

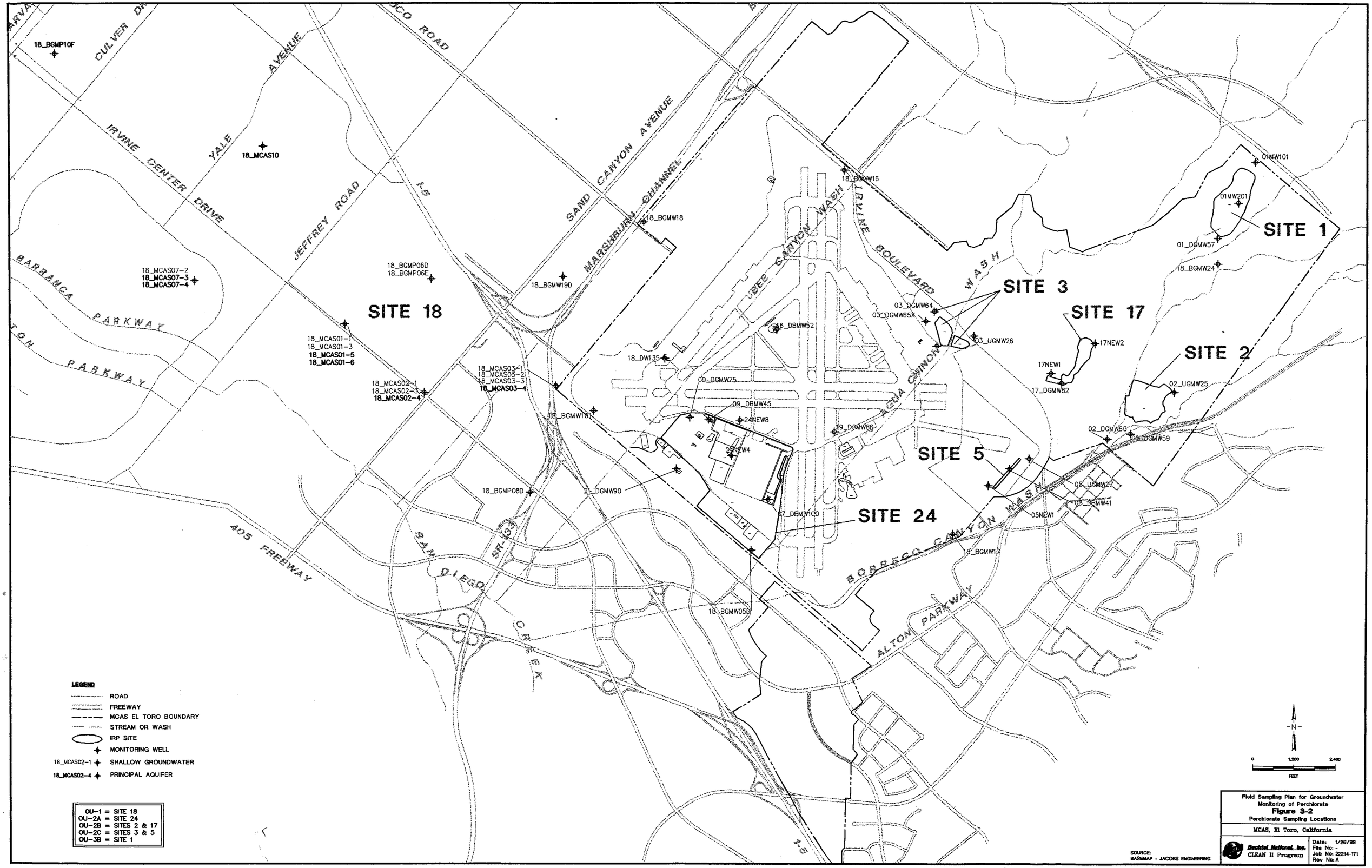
Sample Analytical Results for Groundwater Monitoring of Perchlorate at MCAS El Toro

Station Identification Number	Sample Number[a]	Navy Sample Result µg/L[b]	Navy Data Validation Qualifier	U.S. EPA Sample Result µg/L	DTSC Sample Result µg/L	Remarks
26NEW2 (DBPE sample)	1710054	8[h]	J	6.2	NA	DBPE sample provided by U.S. EPA. U.S. EPA sample identification number was L2, sample ID at left is dummy ID assigned to this sample before submittal to the Navy's analytical laboratory. Spiked perchlorate concentration as prepared by the U.S. EPA contract laboratory was 5 µg/L

Notes:

[a] samples were collected between 07 and 30 October 1998.
[b] µg/L – micrograms per liter
[c] U – analyte not detected
[d] <4 – the analytical result for this sample was less than the method reporting limit (MRL) of 4 µg/L. The method detection limit (MDL) for this analysis was 2 µg/L
[e] NA – a split of this sample was not analyzed by the U.S. EPA and/or the DTSC
[f] the second DTSC split sample from this location was not analyzed
[g] J – estimated value
[h] matrix spike recovery (QC analysis) associated with these samples were outside the accepted range

(table continues)



SOURCE:
BASEMAP - JACOBS ENGINEERING

Field Sampling Plan for Groundwater Monitoring of Perchlorate

Figure 3-2

Perchlorate Sampling Locations

MCAS, El Toro, California

Bechtel National, Inc.
CLEAN II Program

Date: 1/26/99
File No: -
Job No: 22214-171
Rev No: A

Updated 28 January 1999

March 19, 1997

Preliminary Questions
regarding:

Draft Phase II Feasibility Study Report -
OU 2A - Site 24 / March 1997
Marine Corps Air Station, El Toro, California

"Error is a hardy plant; it flourisheth in every soil."
(Martin Tupper)

For the Site 24 , Feasibility Study

[1/28/99 *This item pertains to SVE/Soil Vadose*]

A. Page ES-5, P 1, L 4: The "presumptive remedies" (from the USPA) are presented as prescriptive remedies for VOC-contaminated sites. Consequently, in order to bypass the identifying and screening of remedial technologies for Site 24, the VOC's should then be considered in total. Consequently, the bifurcation of remedial approaches for OU 1 and OU 2A would have to be rescinded, and a remedy that is comprehensive for both OU 1 and OU 2 must be presented.

Does this feasibility study, then, only address some of the VOC's of concern?

B. Page 1-42, P 2 : The commentary regarding 1,2 DCA is flawed, this flaw has been acknowledged by staff personnel as early as February of 1996. Clarification and adequate explanation of these statements has NOT been provided to the RAB since that time. No known written substantiation for these flaws has been provided to the RAB. The persistence of the use of these data, which may be underestimating the potential toxicity of the groundwater, means that the risk assessment may be understating the true risk to human health and the environment.

Will this statement ever be corrected?

==========

Added 28 Jan 99, based upon 5 Dec 97 additions

C. Page ES-5, P 2: There are essentially two groundwater alternatives, both beginning with "pump & treat". In Case A the water is directed to a planned "Desalter", in Case B the product water is to be reinjected. While there is no long term problem with Case A, Case B is inadequate and ill-advised, and still costly. Pump & Treat of the source area is not proactive, and even the Navy consultants (i.e. an Earth Tech geologist) acknowledge that it is not effective remediation. Reinjection is risky and can exacerbate the pollution unless the injector has an exceptionally clear understanding of the underlaying soil stratigraphy. I believe the Navy's alternatives to the "Desalter" are too limited and are not adequately protective of human health and the environment.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

January 13, 1999

Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro
P. O. Box 95001
Santa Ana, CA 92709-5001

Re: U. S. EPA Comments on Draft Proposed Plan for Groundwater Remediation at Marine Corps Air Station El Toro

Dear Mr. Joyce:

The United States Environmental Protection Agency (EPA) has reviewed the document referenced above and we find that overall it is well written but still requires some modifications to more accurately depict remediation activities and to enable the public to better comprehend those activities.

EPA's major comments are presented below. Additional EPA comments dealing largely with sentence and paragraph restructuring will be presented at the Proposed Plan meeting later this month.

Major comments:

1) The Proposed Plan should mention in the heading and discuss on the first page that the remedy addresses both soil and groundwater, and is a "final" remedy.

2) Figure 1 on page 3 should more accurately depict the current groundwater conditions at Site 24. It appears to show TCE concentrations that are higher off station than on station. In addition, the concentrations should show levels as high as 500 ppb or higher. I recommend that a scaled down version of the plume map used by the agencies for evaluating the Site 24 pilot study be used to replace the current figure.

3) There should be a corresponding estimated cleanup time for each alternative presented, to better enable the public to evaluate those alternatives.

4) The section that describes the remediation of contaminated soil at Site 24 needs to be revised to explain that "final" cleanup goals and performance criteria are now proposed. The estimated time to achieve these goals should be also be stated.

If you have any questions, please feel free to call me at (415) 744-2210. I look forward to meeting with you to discuss EPA's other comments.

Sincerely,

Glenn Kistner

Glenn R. Kistner
Remedial Project Manager
Federal Facilities Cleanup Branch

cc: Patricia Hannon, RWQCB
Gregory Hurley, RAB Co-Chair
Tayseer Mahmoud, DTSC
Andy Piszkin, SWDIV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

January 14, 1999

Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro
P. O. Box 95001
Santa Ana, CA 92709-5001

Re: U. S. EPA Comments on Planning Documents for the OU-3B Phase II Remedial Investigation/Feasibility Study MCAS EL Toro, California, December 1998

Dear Mr. Joyce:

The United States Environmental Protection Agency (EPA) has reviewed the document referenced above which contains a Quality Assurance Project Plan (QAPP) and Field Sampling Plans for Sites 7 and 16. I am attaching comments from EPA's Quality Assurance Program which must be addressed before the agency can approve the document.

Please feel free to contact me at (415) 744-2210 if you have any questions.

Sincerely,

Glenn Kistner

Glenn R. Kistner
Remedial Project Manager
Federal Facilities Cleanup Branch

Attachment

cc: Patricia Hannon, RWQCB
Gregory Hurley, RAB Co-Chair
Tayseer Mahmoud, DTSC
Andy Piszkin, SWDIV

January 8, 1999

MEMORANDUM

SUBJECT: Planning Documents for the OU-3B Phase II Remedial Investigation/Feasibility Study, MCAS EL Toro, California (EPA QA Program Document Control Number [DCN] H6CA009QVSF1)

FROM: Joe Eidelberg, Chemist
Quality Assurance Program, PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program, PMD-3

TO: Glenn Kistner, Remedial Project Manager
Air Force & DOE Section, SFD-8-1

Field sampling plans (FSPs) for Site 7 and Site 16 and a quality assurance project plan (QAPP), prepared by Bechtel National, Inc. and dated December 1998, were reviewed. The review was based on guidance provided in "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, October 1997), "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, September 1994), "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects" (9QA-06-93, August 1993), and a Region 9 memorandum "Review and Amendments of Quality Assurance Project Plans for Federal Facilities Cleanup Sites" (September 30, 1996).

In addition to the reviewed FSPs and QAPP, the following subject planning documents were included and provided additional background information: work plans (WPs) for Sites 7, 14, and 16; a data management plan (DMP); an investigation-derived waste (IDW) management plan; a health and safety plan, and risk assessment procedures.

The FSPs and QAPP include most of the elements required by Agency and Region 9 guidance. A number of issues were identified, including: an insufficient number of field duplicates at Site 7, the lack of field duplicates for the soil gas investigation at Site 16, a discrepancy concerning the percentage of data packages to undergo Level III and Level IV validation, and discussions concerning the selection of chemicals of potential concern (COPCs) should be clarified.

In the following comments the Addendum to Appendix G and the Addendum to Attachment G (Site 7, Drop Tank Drainage Area No 2) are identified as the WP Site 7 and FSP Site 7, respectively; and the Addendum to Appendix P and Addendum to Attachment P (Site 16, Crash Crew Pit No.2) are identified as the WP Site 16 and FSP Site 16, respectively.

The QAPP and FSPs cannot be approved by the Quality Assurance (QA) Program until the following concerns are addressed.

Concerns:

1A. [FSP Site 7: Figure G3-2, Proposed Phase II RI Soil Sampling Locations; Table G5-1, Site 7 Units 1 and 3 Soil Sampling and Analysis; Section 5.1.2, Unit 3- New East Pavement Edge; WP Site 7: Figure G-2, Proposed Phase II RI Soil Sampling Locations; Table G-3, Site 7 Units 1 and 3 Soil Sampling and Analysis] Figure G3-2 and Section 5.1.2 of the FSP and Figure G-2 of the WP indicate that 56 samples from 14 locations will be collected at Unit 3. However Table G-3 of the WP and Table G5-1 of the FSP indicate 36 samples from nine locations will be collected. This inconsistency in the document should be resolved.

1B. Figure G-2 of the WP and Figure G3-2 of the FSP should identify five locations for Unit 1 and 14 locations for Unit 3. It is recommended that theses locations be labelled.

2. [FSP Site 7: Section 5, Request for Analyses; QAPP: Section 6.3.1, Duplicates] Section 5 of the FSP states that Section 6 in the QAPP specifies the number and/or frequency for collection of field duplicate and blank samples during the Phase II field activities (BNI 1998b). Section 6.3.1 of the QAPP states that for soils at Site 7 Units 1 and 3, one duplicate sample will be collected per unit. The number of duplicate samples are not consistent with Region 9 guidance which recommends collecting duplicate samples at a frequency of at least ten percent of all field samples for all parameters and matrices. The documents indicate that 20 samples for Unit 1 and 56 samples for Unit 3 will be collected during Phase II study. The duplicate samples for Units 1 and 3 should be two and six respectively. It is also recommended that the FSP identify the location of duplicate sampling.

3A. [FSP Site 16: Section 2.2.1, Phase I Remedial Investigation; Section 2.2.2.1, Soil Sampling Results (Phase II); Section 4.1, Sampling Program] Sections 2.2.2.1 and 4.1 discuss work performed and planned work, respectively. Section 2.2.2.1 indicates Tier 1 and 3 sample collection has been completed

while Section 4.1 indicates that samples have been collected for Tiers 1 and 2. The text should be revised to explain or remove this apparent inconsistency.

3B. Sections 2.2.1 and 2.2.2.1 list the chemicals previously targeted for analysis and the results of analyses indicating the organic compounds present and metals which occur at concentrations greater than background levels. The FSP does not indicate which metals are above background, and metals are not included in the current sampling and analysis scheme. It is recommended that the FSP discuss the reason metals found at concentrations greater than background are not of interest or considered COPCs.

4A. [FSP Site 16: Section 5, Request for Analyses; Section 5.1, Cone Pentrometer Test Sample Locations; Table P5-1, Site 16 Soil Gas and Groundwater Sampling Analyses; QAPP: Section 6.3.1, Duplicates] Field quality control (QC) samples are not discussed in the FSP, which cites Section 6 of the QAPP for field duplicate and blank sample collection frequencies. The QAPP discusses only soil and groundwater field duplicate collection. It is recommended that field duplicates be collected for soil gas analyses and discussed in the QAPP. It is recommended that Table P5-1 include field duplicate and blank sample collection information.

4B. Section 5.1 indicates that 48 soil gas samples will be collected, while Table P5-1 indicates that 54 soil gas samples will be collected. This discrepancy should be resolved.

5A. [QAPP: Table 4-1, Sample Containers, Preservatives, and Holding Times for Phase II RI/FS Analyses at Sites 7 and 16: Section 3.2.4.1, Analytical Methods and Detection Limits] Table 4-1 should be revised to include sample container, preservative, and holding time information for soil gas samples collected for the investigation.

5B. The QAPP indicates carbonate and bicarbonate fractions of alkalinity will be measured by EPA Method 310.1. Note that results measured by EPA Method 310.1 are as total alkalinity. If alkalinity fractions are desired it is recommended that Standard Methods SM2320 be utilized.

5C. The QAPP references "EPA Method SM3500" for ferric and ferrous iron analyses. SM3500 is not an EPA Method, but from Standard Methods. In addition, Table 4-1 indicates that both the sample preserved with nitric acid and hydrochloric acid will be used to determine ferrous iron. The sample preserved with nitric acid should be used for the determination of

total iron, with ferric iron being the difference between the total and ferrous iron measurements.

6. [QAPP: Section 7.2.3, Data Validation; Data Management Plan (DMP): Section 4.4, Data Validation and Review] Section 7.2.3 of the QAPP states that 80 percent of the data will be subjected to a Level III validation and 20 percent will be subjected to a Level IV validation, while Section 4.4 of the DMP states that 90 and 10 percent of the data will be subjected to a Level III and Level IV validation, respectively. This discrepancy should be resolved.

7. [QAPP: Section 7.2.4.4, Duplicates] The equation describing the calculation of relative percent difference (RPD) should be revised to indicate that the denominator is the average of sample 1 and sample 2 concentrations rather than the concentration of sample 1.

8. [QAPP: General] The following items are required by Region 9 and should be addressed in the QAPP:

8A. The QAPP should include a provision for obtaining gas chromatography (GC) and gas chromatography/mass spectrometry (GC/MS) data on magnetic tapes along with other laboratory data deliverables. The tapes containing GC and GC/MS data should also be made available to Region 9 upon request.

8B. Region 9 requires that copies of laboratory audit reports summarizing auditing activities and findings, and any corresponding corrective actions that were implemented as a result of these audit activities, be submitted to Region 9.

8C. As a part of project surveillance Region 9 recommends that double blind PE samples be submitted to the laboratory. The QAPP should also include a provision for providing the results of PE sample analyses [discussed in Section 6.4.2 of the QAPP] to Region 9.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 15, 1999

MEMORANDUM

SUBJECT: Review of DraftTechnical Memorandum - Evaluation of Metals Concentrations in Groundwater

TO: Glenn Kistner, RPM
Navy Section

FROM: Herbert Levine, Hydrogeologist
Technical Support Team

I found this technical memorandum to be well written and an appropriate evaluation of the occurance of metals in groundwater at El Toro MCAS. Of particular concern in the past was whether metals exceeding MCLs were reflective of natural background conditions or indicated a release from base activities. The Navy presented a statistical analysis in 1994 (JEG 1994) from two rounds of data collected in 1992 and 1993. This statistical analysis suggested that the metals concentrations were reflective of background, a subset of seven metals were shown to exceed MCLs as background, more than 93% of each metal analysis was reported at less than background, and that concentrations exceeding the 95th percentile for each metal occur at different wells/ports. The two rounds of monitoring and information from boring logs compiled during Phase I RI along with information from published reports were used to develop a conceptual geochemical model for groundwater. This conceptual model and the statistical analysis lead the Navy to conclude that the MCAS El Toro was not a source of regional inorganic contamination (JEG 1994). There was concern raised by the Agencies due to the limited data set.

The Navy continued sampling for metals during the Phase II RI.With an expanded data set the Navy can now demonstrate that the metals iron, nickel, selenium, and thallium exceed MCLs. However it appears that the stainless steel well materials are likely contributors of iron and nickel. Four other metals, antimony, cadmium, chromium, and manganese appear to represent two sample populations. Since each population included samples from both on and off-station one can conclude that the metal populations are not related to base derived contamination. The chromium is also likely derived from corrosion of stainless steel well materials. The other metals which comprise the second population represent a small subset of the total population. These are interpreted to represent either random transients in local groundwater quality or anomalous concentration values resulting from sampling or analytical irregularities (such as turbidity).

I concur with the results and conclusion of the analysis of inorganic in groundwater at MCAS El Toro. It appears that MCAS El Toro did not cause any degradation of groundwater quality and that the data represent natural conditions. I concur with the recommendation that the Navy discontinue sampling and analysis for target analyte list (TAL) metals since they do not represent groundwater chemicals of potential concern (COPC).

REFERENCES

Jacobs Engineering Group, 1994. Draft Evaluation of Background Concentrations of Inorganic Constituents in Groundwater, Installation Restoration Program Remedial Investigation/Feasibility Study, MCAS El Toro. December

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

January 20, 1999

Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environmental (1AU)
P. O. Box 95001
Santa Ana, CA 92709-5001

Re: Approval of Draft Final Engineering Design Report (EDR) Vadose Zone Remediation Site 24, Marine Corps Air Station El Toro, CA, Dated December, 1998

Dear Mr. Joyce:

The United States Environmental Protection Agency (EPA) has reviewed the above referenced document and the following related documents: Operating and Maintenance Manual, Construction Quality Control Plan and Contingency Plan, and has determined that all EPA comments have been adequately addressed. EPA hereby approves this "design package" for vadose remediation at Site 24.

Although this design package has been approved, EPA requests that the Navy submit as-built drawings to the regulatory agencies after completion of each phase of well installation and before the next phase of well installation, rather than after all wells have been installed as suggested by the EDR. This will allow the regulatory agencies more efficient oversight of well installation.

Please feel free to contact me at (415) 744-2210, if you have any questions. We look forward to working with you during this phase of the remediation.

Sincerely,

Glenn R. Kistner
Remedial Project Manager
Federal Facilities Cleanup Branch

cc: Patricia Hannon, RWQCB
Gregory Hurley, RAB Co-Chair
Tayseer Mahmoud, DTSC
Andy Piszkin, SWDIV

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

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vernor

December 3, 1998

Peter M. Rooney
Secretary for
Environmental
Protection

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
AC/S, Environmental (1AU), BRAC Building #899
P. O. Box 95001
Santa Ana, California 92709-5001

Dear Mr. Joyce:

REQUEST FOR EXTENSIONS TO THE FEDERAL FACILITY AGREEMENT (FFA) SCHEDULES, OPERABLE UNIT (OU)-3 SITES 8, 11, AND 12, MARINE CORPS AIR STATION (MCAS) El TORO

The Department of Toxic Substances Control (DTSC) has received your letter dated November 30, 1998 requesting extensions of the deadlines set forth in Appendix A of the FFA for submittal of a Draft Final Proposed Plan (PP) to the regulators. A revised FFA Appendix A schedule dated November 30, 1998 and a Technical Memorandum on risk management consideration for OU-3 Sites 8, 11, and 12 accompanied your letter.

You requested a three-week extension to submit the Draft Final Proposed Plan (PP) for OU-3 sites to allow time for the BRAC Cleanup Team (BCT) to review the Technical Memorandum and to revisit previous decisions made during the Remedial Investigation and Feasibility Study regarding further action for some of the units within the subject sites. The additional time would allow the BCT to determine whether "no further action" for some of the units within OU-3 Sites is appropriate.

DTSC approves your request for the requested extension. The new due date for the submittal of the OU-3 PP to the regulators is December 22, 1998. DTSC will review the Technical Memorandum, however, DTSC has not previously budgeted any time in the DSMOA grant for this activity. DTSC will require that the Department of the Navy (DON) provide additional time in the grant to review the document. Otherwise, DTSC will be unable to complete other activities it already budgeted in the grant this fiscal year. Should DTSC be unable to complete other activities, it will request extensions pursuant to the FFA until DON provides the additional hours to complete the activity.

If you have any questions, please call Mr. Tayseer Mahmoud, Remedial Project Manager, at (714) 484-5418.

Sincerely,

John E. Scandura, Chief
Southern California Operations
Office of Military Facilities

cc: Mr. Glenn Kistner
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
Superfund Division (SFD-8-2)
75 Hawthorne Street
San Francisco, California 94105-3901

Ms. Patricia Hannon
Remedial Project Manager
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
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Mr. Gregory F. Hurley
Restoration Advisory Board Co-chair
620 Newport Center Drive, Suite 450
Newport Beach, California 92660-8019

Mr. Andy Piszkin
Remedial Project Manager
Naval Facilities Engineering Command
Southwest Division - Code 05BM.AP
1220 Pacific Highway
San Diego, California 92132-5187

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

Pete Wilson
Governor

December 17, 1998

Peter M. Rooney
Secretary for
Environmental
Protection

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
AC/S, Environmental (1AU), BRAC Building #899
P. O. Box 95001
Santa Ana, California 92709-5001

Dear Mr. Joyce:

CLOSURE REPORT APPROVAL: SOLID WASTE MANAGEMENT UNIT 244 AT MARINE CORPS AIR STATION (MCAS) El TORO

The Department of Toxic Substances Control (DTSC) has reviewed the closure report for the above subject site dated October 28, 1998, prepared by OHM Remediation Services Corp. The report summarizes the results of the field remedial activities conducted at Solid Waste Management Unit (SWMU) 244, a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) site referred to as "Polychlorinated biphenyl (PCB) Spill Area" at MCAS El Toro. The SWMU 244 site is located in the southeast quadrant of the Station and was used for storage of a transformer; according to the Station's record, a PCB release occurred from the transformenr into the surrounding soil.

Based on the report, impacted soils have been excavated and removed from the site. Also, confirmation sampling analytical results were below residential cleanup goals. DTSC, therefore concurs with the findings and conclusions of the closure report, and the report is hereby approved.

If you have any questions, please contact Mr. Tayseer Mahmoud, Remedial Project Manager, at (714) 485-5418.

Sincerely,

Sharon Fair
Unit Chief
Base Closure Unit
Office of Military Facilities

cc: See next page

cc: Mr. Glenn Kistner, SFD-8-2
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
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75 Hawthorne Street
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Ms. Patricia Hannon
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California Regional Water Quality Control Board
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Mr. Gregory F. Hurley
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Mr. Bill Sedlak
OHM Remediation Services Corp.
2031 Main Street
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Ms. Lynn Hornecker
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1220 Pacific Highway
San Diego, California 92132-5187

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
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te Wilson
overnor

December 22, 1998

Peter M. Rooney
Secretary for
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Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
AC/S, Environmental (1AU), BRAC Building #899
P. O. Box 95001
Santa Ana, California 92709-5001

Dear Mr. Joyce:

FEDERAL FACILITY AGREEMENT (FFA) SCHEDULE, MARINE CORPS AIR STATION (MCAS) El TORO

The Department of Toxic Substances Control (DTSC) has received your letter dated December 2, 1998. The letter contains a detailed schedule of activities to support an earlier FFA schedule extension request dated November 3, 1998 for Operable Unit 2C (Landfill Sites 3 and 5). A six-month extension is requested to submit the Draft Record of Decision (ROD) for the landfills.

One of the activities listed in the schedule pertains to regulatory agencies research of landfill sites within State of California in support of irrigation of monolithic caps. DTSC staff has no recollection of discussing the subject or committing to conduct such an activity. The regulatory agencies have no knowledge of any golf course constructed over a landfill site that received permit to irrigate over the monolithic cover. Therefore, DTSC requests this activity be deleted from the proposed schedule.

DTSC does not approve the full six month extension. You have until March 15, 1999 to submit the draft ROD to the regulatory agencies. Please resubmit a revised schedule of activities to the agencies. If you have any questions, please call Mr. Tayseer Mahmoud, Remedial Project Manager, at (714) 484-5418.

Sincerely,

John E. Scandura, Chief
Southern California Operations
Office of Military Facilities

cc: See next page.

cc: Mr. Glenn Kistner
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
Superfund Division (SFD-8-2)
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Ms. Patricia Hannon
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Mr. Peter Janicki
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Mr. Andy Piszkin
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Department of Toxic Substances Control

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ıray Davis
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Winston H. Hickox
Secretary for
Environmental
Protection

January 13, 1999

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
AC/S, Environmental (1AU), BRAC Building #899
P. O. Box 95001
Santa Ana, California 92709-5001

Dear Mr. Joyce:

APPROVAL OF DRAFT FINAL ENGINEERING DESIGN REPORT (EDR), OPERATING AND MAINTENANCE MANUAL (O&MM), CONSTRUCTION QUALITY/QUALITY CONTROL PLAN (QA/QC), AND CONTINGENCY PLAN (CP) FOR VADOSE ZONE REMEDIATION AT OPERABLE UNIT 2A, SITE 24, MARINE CORPS AIR STATION (MCAS) EL TORO

The Department of Toxic Substances Control (DTSC) has completed the review of the above subject documents dated December 15, 1998 and response to regulatory agencies' comments on the draft documents. The EDR provides the engineering design, specifications, and implementation methodology for a soil vapor extraction (SVE) system to address volatile organic compounds (VOC)-contaminated soil at Site 24.

Based on our review of the documents, the Navy has changed the four major phases of the design process into three major phases without consulting with the state regulatory agencies, i.e., DTSC and the Regional Water Quality Control Board. Currently, the EDR presents a remedial design and the remedial action that will be constructed, tested, and operated using a phased approach. A final closure report, along with as-built drawings, will be submitted to the regulatory agencies at the completion of remediation.

DTSC approves the design package; however, for each phase of the remedial action, the as-built drawings of the well field and conveyance network, once actually constructed, must be submitted to the regulatory agencies for review. Additional comments on the documents are enclosed.

If you have any questions, please call Mr. Tayseer Mahmoud, Remedial Project Manager, at (714) 484-5418.

Sincerely,

John E. Scandura, Chief
Southern California Operations
Office of Military Facilities

Enclosure

cc: Mr. Glenn Kistner
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
Superfund Division (SFD-8-2)
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Ms. Patricia Hannon
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Mr. Pat Brooks
Bechtel National, Inc.
1230 Columbia Street, Suite 400
San Diego, California 92101-8502

Mr. Gregory F. Hurley
Restoration Advisory Board Co-chair
620 Newport Center Drive, Suite 450
Newport Beach, California 92660-8019

Department of Toxic Substances Comments on
Draft Final Engineering Design Package
Dated December 15, 1998
Marine Corps Air Station El Toro

RESPONSE TO REGULATORY AGENCIES COMMENTS:

Response to Comments, Page 5, Comment no. 5: The response provides, for illustration purposes, pore volume exchange rates for low-, medium-, and high-permeability soil zones for two examples of radius of influence (ROI). Please note that doubling the ROI of a well quadruples the volume of the capture zone of that well, assuming a capture zone with a cylindrical shape. Therefore, the time it takes to exchange one pore volume of soil gas at the same extraction flow rate also quadruples. The times shown for the low- and medium-permeability soil zones do not reflect a quadrupling of times.

Response to Comments, Page 11, Comment no. 19: For each phase of the remedial action, the as-built drawings of the treatment compound should also be attached to the respective monthly report as soon as the compound is constructed. Since the construction, installation, and operation of the remediation activities will be progressing through several active phases, I feel that such a piece-wise submittal of as-built drawings at the completion of all construction activities.

ENGINEERING DESIGN REPORT (EDR):

EDR, Page 9-1, Section 9.1, Monthly O&M Reports: For each phase of the remedial action, the Monthly O&M Reports should also include copies of as-built drawings of just completed wells, piping, trenches, treatment compounds, or any other constructed portions of the remediation design. If previously submitted as-built drawings require modification, those as-built drawings shall be resubmitted in revised form. In addition, each monthly O&M Report should provide a brief narrative of major activities expected to be undertaken during the following month.

OPERATING AND MAINTENANCE MANUAL (O&MM):

The Navy did not submit a draft final O&MM document, and deems the draft dated August 1998 essentially complete. The Navy claims that the August 1998 El Toro submittal is substantially based on the O&MM previously prepared for the Norton AFB, and that the Norton AFB remediation activities are sufficiently similar to allow the reuse of the Norton AFB document at El Toro Site 24.

The August 1998 El Toro draft O&MM document does not address issues such as the phased approach to bringing SVE wells online and other issues related to the partial overlap of remedial construction and operation activities. The El Toro O&MM also could have been improved by incorporating historical operational and maintenance information learned from the Norton AFB project. In spite of these deficiencies, the August 1998 El Toro draft O&MM document contains sufficient information to be considered an adequate document.

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

January 22, 1999

Gray Davis
Governor

Winston H. Hickox
Secretary for
Environmental
Protection

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
AC/S, Environmental (1AU), BRAC Building #899
P. O. Box 95001
Santa Ana, California 92709-5001

Dear Mr. Joyce:

COMMENTS ON DRAFT PROPOSED PLAN FOR GROUNDWATER REMEDIATION, OPERABLE UNIT (OU) 2A SITE 24 AND OU-1 SITE 18, MARINE CORPS AIR STATION (MCAS) El TORO

The Department of Toxic Substances Control (DTSC) has completed the review of the above subject document dated November 1998. The document describes the alternatives for cleanup of contaminated groundwater at Site 18, the Regional Groundwater Plume and Site 24, the volatile organic compounds (VOC) source area at MCAS El Toro. The Proposed Plan (PP) identifies Enhanced Alternative 8 for remediation of the principal aquifer at Site 18 and a variation of Alternative 10B' for remediation of the shallow groundwater unit at Site 24 as the preferred remedy. Also, soil vapor extraction will be used to remediate soil at Site 24.

DTSC comments are as follows:

1. DTSC concurs with the Marine's proposed selection of Enhanced Alternative 8 and Alternative 10B' for groundwater and soil vapor extraction for soil remediation. However, a final decision on the selected remedy will be made after comments are received from the public.

2. Page 1, second column, first paragraph - Please revise the last sentence to read as follows: "Prevent domestic use of groundwater containing VOCs above cleanup levels until it is cleaned."

3. Page 4 & 5, What the Remedial Investigation Found - Provide the estimated quantities of TCE and the highest concentrations detected in the groundwater. This will give the reader an idea of how much contamination exists on and off Station.

4. Page 12, third paragraph - Please revise the last sentence to indicate the operational testing of the treatment system began in January 1999.

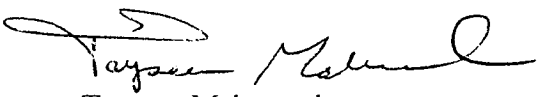
5. Page 13, The Marine's Preferred Remedy - Groundwater from the shallow groundwater unit which has high concentrations of VOCs will go through VOC "Pretreatment" before it is blended with the deep aquifer groundwater that has low concentrations of VOCs. Also, we understand that the blended shallow and deep groundwater VOC treatment takes place after TDS and nitrates are treated in the Irvine Desalter Project. Please revise the diagram to also show the VOC treatment after the IDP.

   DTSC considers the "Pretreatment" as part of the treatment process and the CERCLA remedy. You may consider it as Phase I of the treatment train because it is a truly VOC treatment and disposal of a groundwater CERCLA waste. Also, this treatment must comply with the Applicable or Relevant and Appropriate Requirements. The design and other relevant documents must be submitted to the regulatory agencies for review and approval. Please delete reference to "Pretreatment" not being a CERCLA remedy.

For additional comments on the document, please see the enclosed comments from Ms. Marsha Mingay, our Public Participation Specialist.

If you have any questions, please call me at (714) 484-5418.

Sincerely,



Tayseer Mahmoud
Remedial Project Manager
Office of Military Facilities
Southern California Operations

Enclosure

cc: Mr. Glenn Kistner
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
Superfund Division (SFD-8-2)
75 Hawthorne Street
San Francisco, California 94105-3901

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

ray Davis
iovernor

Winston H. Hickox
Secretary for
Environmental
Protection

MEMORANDUM

TO: Mr. Tayseer Mahmoud
Remedial Project Manager

FROM: Ms. Marsha Mingay
Public Participation Specialist

DATE: January 21, 1999

SUBJECT: PROPOSED PLAN FOR GROUNDWATER REMEDIATION AT MARINE CORPS AIR STATION EL TORO (OPERABLE UNIT 1 SITE 18 AND OPERABLE UNIT 2A SITE 24)

Thank you for the opportunity to review the above referenced document. The document attempts to fully explain the remedial investigation and feasibility studies done for OU 1 Site 18 and OU2A Site 24. Please note that in conducting my review, I did not compare the information in the Proposed Plan with the information contained in the remedial investigation and feasibility study reports or the proposed agreement between the United States and the Irvine Ranch and Orange County Water Districts.

In addition to the comments presented below, please note that in mailing documents to the Mr. Joyce's address (the same address that public comments are to be sent to), we have had several pieces of mail returned as "address unknown".

If you have any questions regarding the following comments, please contact me directly at (714) 484-5416.

GENERAL COMMENTS:

1. This document, which is written with the intent of educating the public and inviting them into the decision making process, is hindered in achieving its goal by the documents length and small font. Both of these make the document hard to read and it is difficult to conceive an average person spending the time to review the full 18 pages. It is strongly suggested that the text be further simplified and shortened to increase the reader's ability to understand the material being presented.

2. Throughout this document, please substitute the proper name "United States" with the agency's name who is responsible for the agreements and decisions. This clarification

will help the reader to understand what agency within the federal government is responsible for the cleanup and agreements being made.

3. Since this document contains technical information and many definitions, it is suggested that a glossary be included. Having all definitions in a central place may increase the reader's ability to understand the material being presented.

SPECIFIC COMMENTS:

4. Page 1, Public Comment Period, text inset — Please add the following words to the existing sentence; the addition will clarify the documents available for public review and comment. "We encourage you to comment on this Proposed Plan, Remedial Investigation and Feasibility Study for OU1 Site 18 and OU2A Site 24. The thirty-day comment period begins on xxx and ends on June 9, 1999. All comments postmarked by June 9, 1999 will be evaluated in the final decision. Please mail comments to .... Written responses to comments received will be recorded in a Record of Decision (see page 17)."

5. Page 1, first column, third paragraph — It is believed that this paragraph also addresses Site 18; however, the introductory sentence only mentions Site 24. Please review and correct as applicable.

6. Page 1, first column, third paragraph — To clarify the information presented, please add the following word to the existing sentence, "TCE is present in a **groundwater** plume that ...". Additionally, to assist in minimizing unnecessary concern, please add a sentence that states "The groundwater is currently not used as a drinking water source."

7. Page 1, first column, third paragraph — To shorten the length of the Proposed Plan, and to remove information that may be of secondary importance, it is suggested that the following information be deleted. (Please note that this information is found, in greater depth, on page two.) "Two large aircraft hangars and other ...TCE is no longer used at the Station".

8. Page 1, second column, second full paragraph — This paragraph, which summarizes a proposed agreement between the "United States" and Orange County Water District and Irvine Ranch Water District, is confusing. Conclusions drawn from this paragraph are: 1) groundwater will be treated to drinking water standards; 2) VOC treatment will be done at the expense of Orange County Water District and Irvine Ranch Water District; 3) VOCs will be treated at the Irvine Desalter Project treatment plant; and, 4) Orange County Water District and Irvine Ranch Water District will also treat total dissolved solids and nitrates. Are the above conclusions correct? If not, please make the appropriate changes.

Additionally, the paragraph leaves several questions: If the preferred alternative is based upon this proposed settlement with Orange County Water District and Irvine Ranch Water District, then isn't the public comment period moot? If the proposed settlement fails, what is the proposed alternative? It would seem that Orange County Water District and Irvine Ranch Water District is paying for the removal of VOCs. If this is correct, why are they paying for cleanup of groundwater that the Department of Defense contaminated?

It is suggested that new wording be created to address these types of probable questions from the community. To address the possibility that the proposed settlement is not signed, the following statement is suggested, "The Department of the Navy will consult with regulatory agencies and propose a different alternative that will be subjected to public review and comment."

9. Page 1, second column, second full paragraph — To increase the reader's ability to understand this document at a glance, state the preferred alternative's number.

10. Page 1, second column, second full paragraph — As stated in the General Comments listed above, state the agency's name that is entering into the agreement with Orange County Water District and Irvine Ranch Water District.

11. Page 1, second column, second full paragraph — The second sentence needs to be further clarified by using the proper name versus the pronoun of "their" ("... at a VOC treatment plant constructed at their planned Irvine Desalter Project ...".

12. Page 1, second column, second full paragraph — Include definitions for "total dissolved solids" and "nitrates".

13. Page 2, introductory paragraph, last sentence — Since this section also includes a summary of OU2A Site 24, it is believed that the sentence is incomplete in introducing the material in this section. The following wording is suggested. "An overview of the environmental investigation results pertaining to groundwater contamination and soil contamination (VOC source area) at these two sites is presented below."

14. Page 2, first column, second paragraph under "Site Background" — The sentence states, "Water from the irrigation wells used for agriculture is not adversely impacted by the low TCE concentrations in the groundwater. Drinking water wells ... are also not affected." Please clarify in the Proposed Plan what is meant by "not adversely" and "not affected". By clarifying the information presented, the average reader will know if the agricultural products can be currently eaten without risk to human health and if drinking water today from the "drinking water well" is safe for human health. In essence, a plain and

straightforward approach to these basic concerns would assist the reader in understanding the material under review.

15. Page 2, second column, first paragraph, last sentence — It is feared that the word "incidental" will be interpreted to mean, secondary or inconsequential. Since it is assumed that the Department of Defense does not intend this meaning, please replace this word.

16. Page 2, second column, "Previous Studies" — It is suggested that this information be further simplified to the basic interests of the reader; namely, several studies were conducted, former employees were interviewed, a cleanup and abatement order was issued (also state that this was for), investigations verified VOCs were present in groundwater, and the cleanup and abatement order was rescinded (also state why it was rescinded). Currently, the information explains Site Inspection Plan of Action and the number of sites recommended for investigation. It is felt that this level information is secondary to a general overview of the above mentioned activities.

However, if the current wording remains, please incorporate the following: 1) define a remedial investigation/feasibility study, 2) state what the cleanup and abatement order was for, 3) state where the three extraction wells came from (did DoD install them for this express use), and 4) state why was the cleanup and abatement order rescinded.

17. Page 3, map — To increase the visual reference for Site 24, follow the layout for Site 18. Specifically, insert "Site 24" into the white area outside of the base map.

18. Page 3, first line on page — Please change the following sentence as indicated since investigations prior to this stage had verified chemical releases had occurred. "... and characterize the nature and extent of ~~potential~~ chemical releases into the environment ..."

19. Page 3, first full paragraph, first sentence — Please remove the word "extensive" since it is subjective and unsupported in meaning.

20. Page 3, first full paragraph, second sentence — The sentence explains why the first phase concentrated on IRP sites within the Station, but does not explain why it also focused on the groundwater west of the Station's boundary. Please provide additional information.

21. Page 3, first full paragraph, third sentence — It is suggested that the word "but" be replaced with the word "and". Using the word "and" corrects the sentence's meaning.

22. Page 4, second column, "Irvine Desalter Project" — To clarify the information presented, insert the common name of the inorganics being referred to in this sentence, the following

language is suggested, "Remediation of inorganic compounds **(nitrates and total dissolved solvents)** in groundwater ...".

23. Page 5, text inset box — It is thought that the average reader will interpret the information to mean that although the cleanup of VOCs is the Department of Defense's responsibility, they are proposing to use a treatment system built and paid for by the Orange County Water District and Irvine Ranch Water District (see last paragraph of text). Please add sufficient information to clarify the relationship.

24. Page 6, introductory paragraph — To increase the reader's understanding of the risks, add the following words to the existing sentence, "potential risks to human health are present **if untreated water is used for drinking or bathing**."

25. Page 6, introductory paragraph — The information states that ecological risk assessments were not performed because groundwater is too far below the surface for plant and animal exposure. However, the average reader may be interested in how the shallow soil area at Site 24 effects plants and animals. Please provide additional information to answer this concern.

26. Page 6, "Identifying Exposure Pathways" — The paragraph states what assumptions were made to determine risk from groundwater. Please state the assumptions made to determine risk from shallow soils.

27. Page 6, "Estimating Human Health Risks" — Although the first two sentences were used in prior Proposed Plans reviewed by this office, the statements could be improved by stating why these declarative sentences are true.

28. Page 6, "Estimating Human Health Risks", first paragraph, last sentence — Please clarify the term "reasonable maximum potential risk" or use the language from a previous proposed plan (i.e., "The assumptions made during the risk assessment process lead to an overestimation of potential risk and provide a margin of safety ....").

29. Page 6, "Estimating Human Health Risks", second paragraph, third sentence — Clarify the meaning of "extended" in the sentence, "... it is calculated assuming an individual has an extended exposure to the chemicals."

30. Page 6, "Estimating Human Health Risks", second paragraph, last sentence — To improve clarity, inserts commas before and after the phrase, "in addition to those cases that otherwise occur".

31. Page 6, "Estimating Human Health Risks", last paragraph, last sentence — Please note that there is no mention of using the hazard index to determine risk to human health and the environment for current or future uses. It is suggested that this be added.

32. Page 6, "Risk Assessment Results" — Please delete the phrase, "and exposure to untreated groundwater at some locations has risk levels that exceed 10^{-4}" since this subsection addresses soil only.

33. Page 7, second column, first partial paragraph — To clarify the information and further educate the reader insert, in parenthesis, examples of the VOCs attributable to Station activities.

34. Page 7, second column, first full paragraph — Since the VOCs exceed maximum contaminant levels (MCLs), and since page 6 states that MCLs set the maximum permissible level of contaminate delivered to a user of public water, the sentences in this paragraph seem incorrect. A more appropriate sentence (versus the sentences in this paragraph) would read, "The VOCs in the principal aquifer exceed MCLs therefore remedial action must be taken to bring the VOCs into compliance with the drinking water standards."

35. Page 7, Table 1 — To increase the reader's ability to understand the material being presented, include, in the table, a column which provides the maximum detected VOCs levels found at the site. Without this information, it is hard for the reader to comprehend how much cleanup is needed to bring the site into compliance with the standards.

36. Page 8, first column, first full paragraph — To improve the flow of information being presented, it is suggested that the sentence, "Leaching is a process ... through the soil" be stated within parenthesis. This will appropriately set it off from the main text and identify it as an explanation of the preceding sentence.

37. Page 8, second column, first partial paragraph — The paragraph states, "The IDP Project relies on the VOC-related wells and treatment system being planned by OCWD/IRWD". This sentence creates the idea that the OCWD and IRWD will be extracting and treating VOCs. This is a new fact and needs to be clarified and explained. As stated in an earlier comment, the community may ask, "Why is the water districts paying for the cleanup of VOCs contamination caused by the Marine Corps?". Please add sufficient information which clarifies this issue for the reader.

38. Page 8, Alternative 6A — To further educate the reader, provide a definition for "blending".

39. Page 8, Alternative 6A (and in all other areas where this issue arises) — To clarify the process and further explain the roles and relationships, explain why the IDP is treating VOCs versus treating for total dissolved solids and nitrates.

40. Page 8, second column, last partial paragraph — To further offset Alternatives 2A and 6A from the text, insert a space between the description of Alternative 6A and the paragraph which precede it. This will match the format established between the introductory paragraph and the description of Alternative 2A.

41. Page 9 — It is suggested that the text include, in parenthesis, the cost of the groundwater extraction and treatment system for the principal aquifer. This will substantiate the reference to "high cost".

42. Page 9 — The definitions for natural attenuation and monitored natural attenuation seem to be lost in the text. Since it is secondary to the information being presented, place the information in parenthesis.

43. Page 10, Alternative 7B - The text does not specifically state that the Marine Corps will use the irrigation wells to extract groundwater. Please add supporting text to clarify. The text also does not state that the extracted groundwater will be treated in the existing VOC treatment system for shallow groundwater. Add sufficient wording to clarify this process. Also state how the treated water will be injected into the deeper aquifer.

44. Page 10, Alternative 8 — The phrase, "extracts groundwater from wells in the shallow groundwater unit at the existing wells located primarily in the principal aquifer", is confusing. It is not clear if the wells extract from within Site 24 shallow area, outside Site 24 shallow area or from the principal aquifer or all of the above. Please review and reword to clarify the information.

45. Page 11, Site 24, introductory paragraph, second sentence — Should the word "include" be substituted with the word "used"? Please review and make the necessary correction as applicable.

46. Page 11, Alternative 10B — Since this alternative is similar to 10A which is identical to 6A, and since 6A has a conceptual drawing in the proposed plan and 10A does not, it would be clearer for the reader if the reference is to 6A and 10A. Please review and make appropriate changes to the document.

47. Page 12, Remediation of VOC-Contaminated Soil at Site 24, first sentence — To minimize the possibility that the reader believes this was a final remedy, insert the word "interim" before the phrase, "remedy selected to remove VOCs from soil".

48. Page 12, Remediation of VOC-Contaminated Soil at Site 24 — Please substantiate or delete the sentence "SVE is an integral part of the groundwater remedy". As the paragraph is written, the sentence does not connect with the surrounding sentences.

49. Page 12, Remediation of VOC-Contaminated Soil at Site 24, second paragraph, first sentence — Although soil vapor extraction has been used successfully at some sites, there are critics of this technology who would state that it is not a "proven technology". To remain with purely factual statements, it is suggested that the first sentence in this paragraph be substituted with an opening phrase that leads into the definition of soil vapor extraction and how conditions at the base promotes the VOC extraction.

50. Page 12, Remediation of VOC-Contaminated Soil at Site 24, third paragraph, first sentence — The purpose of the Proposed Plan is to educate the reader sufficiently enough so that they can comment on the proposed cleanup actions. Since the alternatives in this Proposed Plan rely upon soil vapor extraction, it is believed that the following phrase needs to be substantiated so that the reader can determine if soil vapor extraction is "effective, technically feasible for site conditions, and poses a minimum of risk to public health and the environment".

51. Page 12, Remediation of VOC-Contaminated Soil at Site 24, last paragraph — To increase the reader's ability to understand the material being presented, include a definition for "rebound effect".

52. Page 12, Remediation of VOC-Contaminated Soil at Site 24, last paragraph — To increase the clarity of the information being presented, define what is meant by "concentrations are minimal" and "VOC mass that can be removed is very small". At what level, or at what mass, will the Marine Corps reevaluate and perform a technical and economic feasibility analysis? Please include this information to assist the reader in understanding the proposal.

53. Page 12, Remediation of VOC-Contaminated Soil at Site 24, table — To increase the reader's ability to understand site conditions and the amount of cleanup required to meet cleanup goals, include, in the table, a column which provides the detected soil gas levels found at the site.

54. Page 13, introductory paragraph — Since an alternative named "Enhanced Alternative 8" was not introduced in the previous sections, this terminology needs to be explained prior to introducing it as the preferred alternative.

55. Page 13, Enhanced Alternative 8, last sentence — Please state the reference for the conclusion "Enhanced Alternative 8 is the functional equivalent of the Site 18 Alternative 6A in terms of VOC mass removal, the volume of extracted groundwater ..."

56. Page 13, Alternative 10B' — The following questions arise from reading the current wording. It is suggested that additional information be added to the Proposed Plan in order to answer these issues before they arise.

- What criteria will be used by the Marine Corps and regulatory agencies in determining the actual number and location of wells? Why is this information not included in the proposed plan? Why is the public not allowed to comment on this part of the proposal?

- Why does the preferred alternative include a drop in the flow rate? Is this drop in flow rate more effective?

- How can the cleanup time be comparable to 10B when the flow rate has dropped from 800 gallons per minute (gpm) to 440 or 550 gpm?

57. Page 13, Enhanced Alternative 8 and Conceptual Design — The conceptual design depicts a "VOC Pretreatment Plant at Site 24". This stage of the process is not explained in the Enhanced Alternative 8 description. Please add information which describes this stage. Note that it is not clear to this reviewer why the pretreatment of VOCs is not within CERCLA.

58. Page 13, Additional Measures, first paragraph — The information is confusing and needs to be written in a more straightforward manner. The following is suggested, "If the Marine Corps preferred remedy is selected, the Record of Decision will include specific procedures which authorize the temporary and/or permanent shut down of the IDP. This will be used in the unlikely event that additional contaminants are detected which would not be adequately treated by the IDP."

To increase the flow of information, place the last paragraph in column two immediately following the suggested wording listed above.

59. Page 13, second column, first paragraph and the two bullets — To separate the CERCLA activities from the non-CERCLA activities, create a subheading for non-CERCLA activities.

60. Page 14, First paragraph -To present the information which follows, include an introductory sentence which tells the reader there are two settlement agreements.

61. Page 14, first paragraph — As stated in earlier comments, please clarify why there are VOC related components in the Irvine Desalter project.

62. Page 14, Comparative Cost Estimate Summary - It is not clear to the average reader, why the preferred remedy is lower in costs than the alternatives that it is based on. It is strongly suggested that an explanation, in non-technical terms, be provided.

63. Page 15, introductory text — Please state at the end of the text, "A more in-depth evaluation of all the alternatives is contained in (name of document). This document is available for review and comment. Please see 'Where to Get More Information' for viewing locations."

64. Page 15, Primary Balancing Criteria, first bullet — The term "air stripping" has not been defined in the Proposed Plan. Please provide a definition either in this section or in the descriptions of the alternatives.

65. Page 15, Community Acceptance, last two bullets — The Superfund Amendments and Reauthorization Act of 1986 requires that the remedial investigation reports also be available for public comment. Please include this information in the bullet. Additionally, the third bullet should state, "Public comment on the Proposed Plan **and the remedial investigation and feasibility studies** will be reviewed **and considered** during the preparation of the Record of Decision."

66. Page 16, text inset "Rationale for ..." - The first sentence states why the Marine Corps prefers the alternative. State and community acceptance are included among their justifications. Since acceptance by the state and community is yet to be determined (as correctly stated in two previous places within the Proposed Plan), it is inappropriate to include them as a rational for preferring this alternative. Please delete them from the sentence.

67. Page 17, first column, first paragraph, last sentence — The sentence refers to an IRP process that is shown on page 14. Please correct this to read, "... on page 17".

68. Page 17, second column, third full paragraph — Please ensure that this milestone will be achieved prior to publishing this Proposed Plan (i.e., "In January 1999, the Proposed Plan for soil cleanup at OU-3 Sites 8, 11, and 12 was released for public comment.").

69. Page 17, "What Happens ...", second paragraph, fourth sentence — To avoid confusion, substitute the word "and" with the word "or". The sentence would read, "All comments received in writing **or verbally** provided to the court reporter ...".

70. Page 19, "Where to Get More Information" — As stated in earlier documents, please correct the title for Ms. Marsha Mingay. The correct title is "Public Participation Specialist".

Department of Toxic Substances Control

Jesse R. Huff, Director
5796 Corporate Avenue
Cypress, California 90630

Gray Davis
Governor

Winston H. Hickox
Secretary for
Environmental
Protection

MEMORANDUM

TO: Mr. Tayseer Mahmoud
Remedial Project Manager

FROM: Ms. Marsha Mingay
Public Participation Specialist

DATE: January 26, 1999

SUBJECT: MCAS EL TORO'S RESTORATION ADVISORY BOARD MEETING MINUTES FOR DECEMBER 2, 1998

Upon review of the above referenced meeting minutes (received January 21, 1999), the following comments are provided. Note that the submittal of some these comments (example numbers 6 and 7) are felt necessary due to the comprehensive tone of the minutes. Please forward these comments to the base representatives so that the changes are assessed and incorporated into the final copy of the minutes. Additionally, the base representative needs to be appraised of these changes prior to the January 27, 1999 Restoration Advisory Meeting so that the minutes will not be approved as they are currently written.

If either yourself or the base representatives have any questions regarding these comments, please contact me directly at (714) 484-5416.

1. Page 2, fourth bullet on the page — Please change the wording as indicated to reflect the statements made "... DTSC may need to ~~re~~evaluate ~~its oversight role~~ **workload commitments across Southern California**.

2. Please correct the spelling of Marsha Mingay's name throughout the document. The correct spelling is "Marsha" versus "Marcia".

3. Summary of Glenn Kistner's Regulatory Agency Update — The meeting minutes seem to be missing Mr. Kistner discussion about Department of Defense's (DoD) request for a schedule extension. The minutes should state, "**In response to DoD's request, the agencies have asked DoD to submit a detailed schedule of activities which would lead to the submittal of the Record of Decision.**"

4. Following Mr. Kistner's regulatory update summary on the Draft Technical Memoranda Modeling Reports, the RAB members entered into a lengthy debate on the merits of sampling for hazardous waste components. Since it was a topic of debate and concern, the meeting minutes should reflect this occurrence.

5. Page 4, Ms. Mingay's comments on the Draft Technical Memoranda Modeling Reports are incorrect. Ms. Mingay did not read from Mr. Mahmoud's letter but rather read Mr. Mahmoud's prepared statement. Please substitute the following for the information in italics and the strikeout text. ~~"She read a portion of Tayseer's comment letter that was provided on the sign-in table. The letter reads, "*The model estimates that ... or to the environment.*"~~ In regard to the Draft Technical Memoranda Modeling Reports, Ms. Mingay stated that there appears to be some differences between U.S. EPA and DTSC. Specifically, what Mr. Mahmoud left me to read is different from Mr. Kistner's comments. Mr. Mahmoud's comment states that sampling should be done to ascertain if *hazardous waste* is present in the landfills and Mr. Kistner's comments did not address hazardous waste. She then read Mr. Mahmoud's prepared statement, 'DTSC can't accept infiltration or leakage from a landfill containing hazardous waste. The model shows 5-13.7 inches per year infiltration for the golf course therefore need to characterize the landfill to verify if hazardous waste exists.' ~~She added that DTSC agrees with and supports IWMB comments on this issue and that both U.S. EPA and Cal-EPA DTSC agree that such a survey needs to be done.~~ Following Ms. Mingay's comment, the RAB members again requested that the landfills be sampled for hazardous waste to determine safety issues for future reuse. Ms. Mingay suggested that this topic be held over and discussed at the next RAB meeting when both agencies had their technical representatives where in attendance. The RAB and the RAB co-chairs agreed to this suggestion."

6. Page 4, last paragraph on the page — To correct and complete the meeting minutes, please change the text as follows, "(3) RCRA Closure Report Approval for the ~~Soil~~ **Solid** Waste Management Unit 7; and (4) ~~the FFA schedule extension request for Site 3 and 5~~ **that DTSC had similar comments to EPA's comments regarding DoD's request for a schedule extension**.

7. Page 5, RAB TAPP Determination, second paragraph — The text omits wording needed to clarify the information. Please reword as indicated. **"Mr. Joyce reviewed the criteria under which TAPP grants monies may be authorized** ~~Mr. Joyce reviewed the criteria for TAPP grants that was outlined at the September RAB meeting~~. First, **if** technical expertise does not exist with the regulatory agencies. He said ... Second, **if** technical ...."

8. Page 9, Questions and Answers — Additional questions posed by the RAB and not included in the meeting minutes are, "Why does the thickness of product change? You need another well, like this one 200' west (MWD 398 #12), placed where the plume is

9. migrating. What is the degree of migration? What is the status of reports and frequency of reports?" To follow the comprehensive tone of the minutes, please include these and their responses in the minutes.

10. Page 12, Questions and Answers — One additional question posed by the RAB and not included in the meeting minutes is, "Are you looking at central nervous system effects?" To follow the comprehensive tone of the minutes, please include this and its response in the minutes.

For Information on
MCAS El Toro Redevelopment

Ms. Courtney Wiercoch

Development Program Manager

El Toro Master Development Program

(714) 834-3000